

Chapter 4: Environmental Consequences

Introduction

Because of the magnitude of a project of this nature and the associated complexity of its effects on the environment, the development of an impacts matrix is deemed relevant. The matrix, presented in Figure D1, is designed to graphically illustrate the various alternative alignments in light of the evaluation factors and considerations, and assess the qualities of each alignment.

The matrix is formulated without weighting any factors or relationships, but simply providing means to summarize the findings of the impact analysis described in the following text. The matrix is not intended to isolate or delineate the best alternative alignment, rank the alternative alignments, or rank the factors themselves. It is to illustrate the findings of this effort and how each alternative affects, or is affected by, its surroundings.

In evaluating the impacts associated with each alternative alignment, the two full Build Alternatives are identified as Alignment 4ABC and Alignment 5ABC, and are evaluated using two separate scenarios; the toll and no toll option for each alignment. It is recognized that if a toll is charged for use of the Intermodal Access Road, traffic counts will be less than if the same highway is built but no toll is charged. The differences in environmental impacts between a toll/no toll condition is noteworthy only for a few environmental categories, which address the difference. The remaining categories do not address a toll/no toll condition, since they would have the same impacts for both.

The impacts are identified as those that would be associated with the average width of the alignment, which is 300 feet (90 meters). The width of 300 feet (90 meters) will be used for comparison of impacts. It must be remembered that these alignments are not final and are subject to minor changes and modifications during the preparation of final plans and specifications due to currently unknown conditions.

Figure D1 **Environmental Impacts Matrix**

<div><div></div><div>Compatible Land Use</div><div>Farmland Impacts</div><div>Direct Social Impacts</div><div>Temporary Social Impacts</div><div>Cumulative Impacts</div><div>Relocation Impacts ***</div><div>Economic Benefits</div><div>Air Quality Impacts/Conformancy</div><div>Noise Impacts ***</div><div>Water Quality Impacts</div><div>Wetland Impacts</div><div>Biotic Communities</div><div>Threatened and Endangered Species</div><div>Floodplain Impacts</div><div>Historic and Archeological Preservation</div><div>Hazardous Waste Sites</div><div>Section 4(f) Properties</div><div>Infrastructure/Utility Impacts***</div><div>Traffic</div><div>Costs*</div></div>																					
Segment 4AB	Compatible	Prime 21.7 Acres (8.8 Hectares) Statewide Important 18.6 Acres (7.5 Hectares)	Low	Low	Med	5 Residential 8 Others	Toll \$526 Million Without Toll \$639 Million	Insignificant, in Conformance	Toll 13 Without Toll 13	2 Stream Crossings	0	242.0 Acres Displaced	Insignificant	11.0 Acres (4.73 Hectares)	3 Sites; All are Recommended for Additional Analysis	0	0	2 County Road Closures 3 County Road Relocations	Positive	Toll \$92.5 Million Without Toll \$92.0 Million	
Segment 5AB	Compatible	Prime 25.9 Acres (10.5 Hectares) Statewide Important 10.9 Acres (4.4 Hectares)	Low	Low	Med	3 Residential 2 Other	Toll \$510 Million Without Toll \$620 Million	Insignificant, in Conformance	Toll 14 Without Toll 14	2 Stream Crossings	0	249.3 Acres Displaced	Insignificant	11.2 Acres (4.53 Hectares)	2 Sites; 1 is Recommended for Additional Analysis	0	0	2 County Road Closures 1 County Road Relocation	Positive	Toll \$93.0 Million Without Toll \$92.5 Million	
Segment BC	Areas of Non- compatibility	Prime 46.4 Acres (18.8 Hectares) Statewide Important 40.7 Acres (16.5 Hectares)	Medium	Low	Low	30 Residential 13 Others	**	Insignificant, in Conformance	Toll 136** One School Without Toll 138** One School	2 Stream Crossings	0	**	Insignificant	8.26 Acres (3.34 Hectares)	4 Sites; 1 is Recommended for Additional Analysis	0	0	6 County Road Closures 2 County Road Relocations	Positive	**	
No Action	Compatible	0 Acres	High	Low	High	0 Residential 0 Others	Unknown	Insignificant, in Conformance	Insignificant	0	0	0	Could Be Significant	0	0	0	0	0	Negative	N/A	

* Includes Right-of-Way and Construction Costs.
** Effects of Segment BC are included in Segments 4AB and 5AB.
*** Updated subsequent to the SNB Location Public Hearing conducted by AHTD.

Some environmental resource categories are further analyzed by sections, rather than full alignments. These sections were identified in the previous *Alternatives* chapter and described as Section 4AB, Section 5AB, and Section BC. The purpose of the section delineation is to prevent a duplicative analysis of the section of the Intermodal Access Road that is co-located with the Springdale Northern Bypass (SNB) Selected Alignment Alternative. Only areas containing known changed conditions since the completion of the SNB FEIS along the co-located section (Section BC) of the proposed Intermodal Access Road and the SNB will be analyzed in this chapter, as well as the impacts associated with Sections 4AB and 5AB.

In summary, the environmental resource categories in this chapter where the full alternative alignments are analyzed will include an analysis of two alignments, Alignment 4ABC and Alignment 5ABC. The No Action Alternative will also be considered for these categories. The environmental resource categories analyzed by section will include an analysis of two sections, Sections 4AB and 5AB. These consequences will also include a discussion related to Section BC as included in both the SNB FEIS and ROD.

During the design process for the SNB, an alignment adjustment was made to reduce the impact on existing homes in the area between I-540 and Highway 112. A Design Public Hearing was held, and as of this date, an environmental design reassessment has not been completed by the AHTD. Any new or additional environmental impacts associated with that portion of the SNB alignment that has been changed following the ROD will be addressed by AHTD during the design reassessment. As AHTD will address the new impacts associated with the permitting process, this environmental document will address only the resultant updated traffic, relocations, and noise impacts associated with the new alignment.

Land Use Impacts

Current land use and development trends within the study alignments are primarily associated with the communities of Elm Springs, Cave Springs, Tontitown, Springdale, Lowell and the developing corridor along I-540. Land use impacts are described as either direct or indirect. Direct impacts are associated with the conversion of existing land uses to highway use of properties located within the proposed 300-foot (90-m) right-of-way, or to land uses that are not directly within the right-of-way but are within close proximity so that they may require relocation if adequate access cannot be provided, or if land acquisition damages the value of the remaining property. Indirect, or secondary, impacts occur by commercial development where direct access to the facility will be possible, or development occurring that is encouraged by connectivity to the

highway. Land use impacts are considered in the three following sub-categories, visual environment, air quality, and noise levels.

The major changes to land use patterns since the SNB FEIS and ROD were issued are the proposal or development of several residential subdivisions within the study area. In particular, three new subdivisions will be impacted by the Intermodal Access Road. These are the Legendary Subdivision, located east of Grimsley Road between Spring Creek and Carrie Smith Road, and the Wagon Wheel Bend and Spring Creek Park Subdivisions, located south of Wagon Wheel Road near Sharp Springs Road. Construction of the Springdale Public Willis D. Shaw Elementary School, associated with Legendary subdivision, was completed in 2007. A park site is also proposed within this subdivision.

Visual Environment

For both Sections 4AB and 5AB, the Osage Creek/Little Osage Creek area of confluence will be the dominant visual feature, along with the open vistas between Highways 264 and 112. A large quarry will be the dominant visual feature along Section BC. The visual environment in all three sections varies between rural landscapes and relatively new residential development. Travelers in both directions will enjoy essentially the same visual experience, as there are no great visual differences in travel direction between sections.

The Intermodal Access Road will provide the opportunity to experience the characteristics of the region and its associated rural and urban environments as well as the natural features of the Osage Creek, Little Osage Creek, Spring Creek, rolling hills, wooded areas, and grasslands. In order to evaluate visual impacts, it is necessary to determine the importance of the visual quality in the overall travel experience, review each section in the two opposite directions of travel (i.e., eastbound and westbound), and evaluate particular areas where mitigation measures may contribute to the overall visual quality.

The alternative alignments have been mapped as if the highway will have a constant right-of-way and constant median width. When the detailed alignment design process occurs it will, in all likelihood, be less visually disruptive to vary the median and right-of-way width.

The goals of this visual evaluation are to: 1) integrate the highway with the landscape; 2) direct users attention toward positive visual features and away from negative ones; 3) reduce monotony and increase awareness for the user; 4) reduce dominant visual features during times of maximum driver decision-making; and 5) reduce the visual impact of the

highway to external viewers. Inherent in these goals is the attempt to interpret the landscape characteristics through route selection.

The impact of visual quality *to users of the highway* include settlement patterns and manmade features, landforms, topography and vegetation, and their associated degree of enclosure as well as the orientation of the viewer, the sequence of the view, and the importance of the view. The impact of visual quality *to external viewers of the highway* has a social setting that is addressed as “visual sensitivity”, which is the relative degree of public interest in visual resources and concern over adverse changes in the quality of that resource. Specific impacts include the potential number of external viewers able to see the highway, the disruption of vistas, the importance of those vistas, and the public attitudes about specific views.

Construction of a modern highway facility has the potential to impact the visual appeal to surrounding residents around the creek crossings.

Sections 4ABC and 5ABC are similar in location and about equal in visibility from the few surrounding residences near these sections. In addition to minimizing clearing and grading activities, as well as re-vegetating cut and fill slopes, structural design features, such as bridges, guardrails, and drainage structures should be selected to enhance the visual appearance of the highway.

The No Action Alternative will have no direct effect on the visual environment.

Air Quality

Section 176 (c) of the Clean Air Act Amendments requires that no federal agencies engage in, or support in any way, activities that do not conform to pre-established goals for maintaining air quality or mitigate existing air quality problems. For a federally funded project, the proponent must ensure that: a) the project is consistent with national, state, and local air quality management plans; b) the development of the project would conform to the State Implementation Plan (SIP) for controlling area wide air pollution impacts, c) there is no potential for exceeding state carbon monoxide standards; and d) all federal and state permits required, such as for open burning, fueling facilities, or concrete batch plant operations would be obtained prior to the commencement of those operations.

An air quality assessment was performed following the guidelines established by the Environmental Protection Agency (EPA), AHTD, and FHWA. Benton County is designated as being in attainment for all pollutants listed in the National Ambient Air

Quality Standards (NAAQS). Therefore, this project is not subject to transportation conformity requirements.

Methodology

Carbon Monoxide (CO) is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network, and are used as an indicator of its impacts on local air quality. Local air quality impacts can be assessed by comparing future CO levels with state and federal standards.

CO concentrations were calculated using the CALINE4 computer model, and emission factors for the vehicles were calculated utilizing the MOBILE 6.2 program published by the EPA. Worst-case meteorological conditions were assessed, which included a wind speed of one mile per hour (mph) [1.6 kilometers per hour (km/h)], a stability class G (a worst-case scenario for the most turbulent atmospheric conditions), a worst-case wind direction for each site as determined by the computer model, and a temperature of 32° Fahrenheit (0° Celsius). Emission factors for the year 2010 were used for future modeling. Further it was assumed that all vehicles were traveling at 30 mph (48.3 km/h), which also represents a worst-case assumption.

CO modeling was done for the peak one-hour traffic volumes, with background concentration of 2.0 parts per million (ppm) added to the results to account for background concentrations from sources not included in the modeling. Peak hour traffic volumes have not been projected for the Intermodal Access Road. Average Daily Traffic (ADT) volumes have been projected, and based on the ratio of the peak hour to daily trip generation rates for the uses at the Northwest Arkansas Regional Airport, peak hour traffic represents approximately 10% of the ADT. Therefore, 10% of the ADT was used as the peak hour traffic volume.

Air Quality Impacts

Table D1 illustrates the predicted highest one-hour CO receptor concentrations for the existing situation, the No Action Alternative, and both the no toll and toll options for Alignments 4ABC and 5ABC. This analysis indicates that the highest existing one-hour CO concentration is 6.1 ppm, which is well below the one-hour standard of 35 ppm. The highest one-hour CO concentrations for the future No Action Alternative (6.9 ppm) indicate that no receptors are projected to experience CO concentrations in excess of the 35 parts per million (ppm) standard. The highest projected concentration of 7.1 ppm, associated with both Alignments 4ABC and 5ABC, is about one fifth of the standard. The highest concentrations occur at receptors located near I-540. The analysis shows that the

future concentrations near I-540 do not change with the project. This is because the worst-case CO concentrations at these sites are due to traffic on I-540.

Table D1
PREDICTED HIGHEST ONE-HOUR CO CONCENTRATIONS (ppm)
Northwest Arkansas Regional Airport Access Road DEIS

Receptor	Modeled CO Concentrations ¹					
	Existing	No Action	Alignment 4ABC		Alignment 5ABC	
			No Toll	Toll	No Toll	Toll
33	6.1	6.9	7.1	7.1	7.1	7.1
Standard	35	35	35	35	35	35

¹The CO concentrations include the ambient concentrations of 2.0 ppm.

Based on the analysis, neither Alignment 4ABC nor 5ABC will exceed the one-hour NAAQS for CO. Increasing the efficiency of the transportation network reduces the amount of pollution generated by vehicles. Vehicles traveling at lower speeds emit more pollutants than vehicles traveling at higher speeds. Reducing congestion with new roadways or providing alternative routes with higher speed roadways result in lower pollutant emissions. Additionally, new roadways provide shorter routes for many vehicle trips. This also results in lower air pollutant emissions.

The proposed Northwest Arkansas Regional Airport Intermodal Access Road will be located in an area designated as attainment for all pollutants. Therefore, no substantial air quality impacts are anticipated and no mitigation is required.

Construction Impacts

Temporary impacts will result from project construction activities. Air pollutants will be emitted by construction equipment and fugitive dust will be generated during site grading.

During construction, the selected project contractor will minimize air quality impacts through a combination of fugitive dust control, equipment maintenance, and compliance with state and local regulations.

Noise Levels

Federal Highway Administration (FHWA) noise standards contained in 23 (Code of Federal Regulations (CFR) 772, *Procedures for Abatement of Highway Traffic Noise* specify peak hour Leq limits for various land uses. AHTD has adopted the *Highway Traffic Noise Analysis Policy of Reasonableness and Feasibility for Type 1-Noise Abatement Measures* to complement the federal policy and guidelines. The following narrative is a summary of the noise study assessment for the Northwest Arkansas Regional Airport Access Road (the complete noise report can be found in Appendix C1).

The noise standard used by the FHWA is related to the peak one-hour noise level. It is described in terms of the Equivalent Noise Level (Leq). The Leq for one hour is the energy average noise level during the hour, or put another way, the average noise based on the acoustic energy content of the sound. It can be thought of as the level of a continuous noise that has the same energy content as the actual fluctuating noise level. Peak hour noise refers to the hour with the highest Leq, whether or not it is the peak traffic hour.

Potential noise impacts are a result of both short-term construction activities and long-term operational activities. Short-term construction noise impacts are addressed under a separate heading, Construction Noise. Long-term traffic noise is addressed in the following paragraphs.

Because the existing and forecast traffic levels for the proposed Intermodal Access Road differ from those of the SNB Selected Alignment Alternative, this analysis will consider the full alignments (Alignments 4ABC and 5ABC) rather than the individual sections.

Noise Criteria

The maximum one-hour Leq noise abatement criteria specified by the FHWA and adopted by AHTD are presented in Table D2, entitled *FHWA NOISE ABATEMENT CRITERIA (NAC)*. The FHWA noise abatement criterion establishes an exterior noise limit for Category B land uses of 67 dBA (A-weighted decibel scale) Leq and an interior limit of 52 Leq for Category E uses. FHWA requires the consideration of noise abatement when noise approaches by one dBA, meets, or exceeds the noise abatement criteria or when there is a substantial increase. Even if the predicted noise level does not approach or exceed the noise abatement criteria, traffic noise impacts can occur when the noise levels substantially exceed the existing noise levels. A substantial increase is considered to be a ten-dBA increase in the peak hour Leq noise level.

Table D2

FHWA NOISE ABATEMENT CRITERIA (NAC)*Northwest Arkansas Regional Airport Intermodal Access Road DEIS*

Activity Category	Noise Abatement Criteria	
	Level dBA (Leq)	Description of Activity Category
A	57 (exterior)	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such area could include amphitheaters, particular parks or portions of open spaces, or historic districts that are dedicated or recognized by appropriate local official for activities requiring special qualities of serenity and quiet.
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas and parks that are not included in category A and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.
C	72 (exterior)	Developed lands, properties, or activities not included in Category A or B above.
D	---	Undeveloped lands.
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: 23 CFR Part 772.

Methodology

Traffic noise levels were modeled using Version 2.5 of the FHWA Traffic Noise Model[®] (FHWA TNM[®]). 23 CFR Part 772.17(a) states that any analysis required by this subpart must use the TNM, which is described in Report No. FHWA-PD-96-010.

23 CFR 772 also requires the noise assessment to predict traffic noise levels using traffic characteristics that will yield the worst hourly traffic noise impact on a regular basis for the design year, which for this EIS is 2008. If the roadway does not exceed Level of Service (LOS) C than the worst case hourly noise impact occurs during the peak traffic hour. If the peak hour traffic volume exceeds LOS C, then congestion will result in slowing. This slowing will result in lower noise levels during the peak traffic hour. The peak noise hour occurs when traffic volumes are very high on the roadway, but not so

high that travel speeds fall to a point where noise levels drop. This condition occurs when there are 1,500 vehicles per lane per hour traveling at a speed of 55 mph (89 km/h). This condition is what traffic engineers refer to as LOS C, which results in the peak noise hour condition. Traffic volumes greater than 1,500 vehicles per lane per hour would reduce travel speeds, which result in a reduction of noise levels. Similarly, fewer vehicles result in higher speeds, but the increase in speed is not sufficiently high to offset the reduction in traffic. In this case the roadway does not exceed LOS C and the peak hour traffic will result in the peak noise hour.

Peak hour traffic volumes have not been projected for either the proposed Intermodal Access Road or for Highway 264, Highway 112, and I-540. However, Average Daily Traffic (ADT) volumes have been projected. Based on the ratio of the peak hour to daily trip generation rates, peak hour traffic represents approximately 10% of the ADT. The traffic study indicates that 10% of this traffic will consist of trucks. As a worst-case assumption, 25% of the trucks were modeled as medium (two-axle) trucks and 75% of the trucks were modeled to be heavy (three- or more axle) trucks. Autos were modeled at a speed of 65 mph (105 km/h) and trucks were modeled at a speed of 55 mph (89 km/h). The specific traffic data used in the modeling is presented in Appendix C1, Noise Report.

The noise modeling was conducted for 78 receptors in the vicinity of the project that represent the outdoor areas of frequent use of residences and a school (Site 09b) that are potentially impacted by the Intermodal Access Road. It is these receptors that will be used to analyze the potential noise impacts from the Intermodal Access Road. The locations of these receptors are shown in Figure D2, entitled *NOISE ANALYSIS SITES*. The receptors are numbered based on the nearest measurement site with letters appended to designate individual sites.

No Action Alternative

Future traffic noise levels associated with the No Action Alternative were modeled. In some cases the modeled future traffic noise level is less than the existing noise level. This is because there are other sources of noise (i.e. non-traffic sources) that dominate the noise environment at these receptors. In these cases, there is no reason to believe that the future non-traffic noise sources will change substantially. Therefore, where the existing noise level is higher than the modeled No Action Alternative traffic noise level, the existing noise level will be used as the future No Action Alternative noise level for all further analysis.

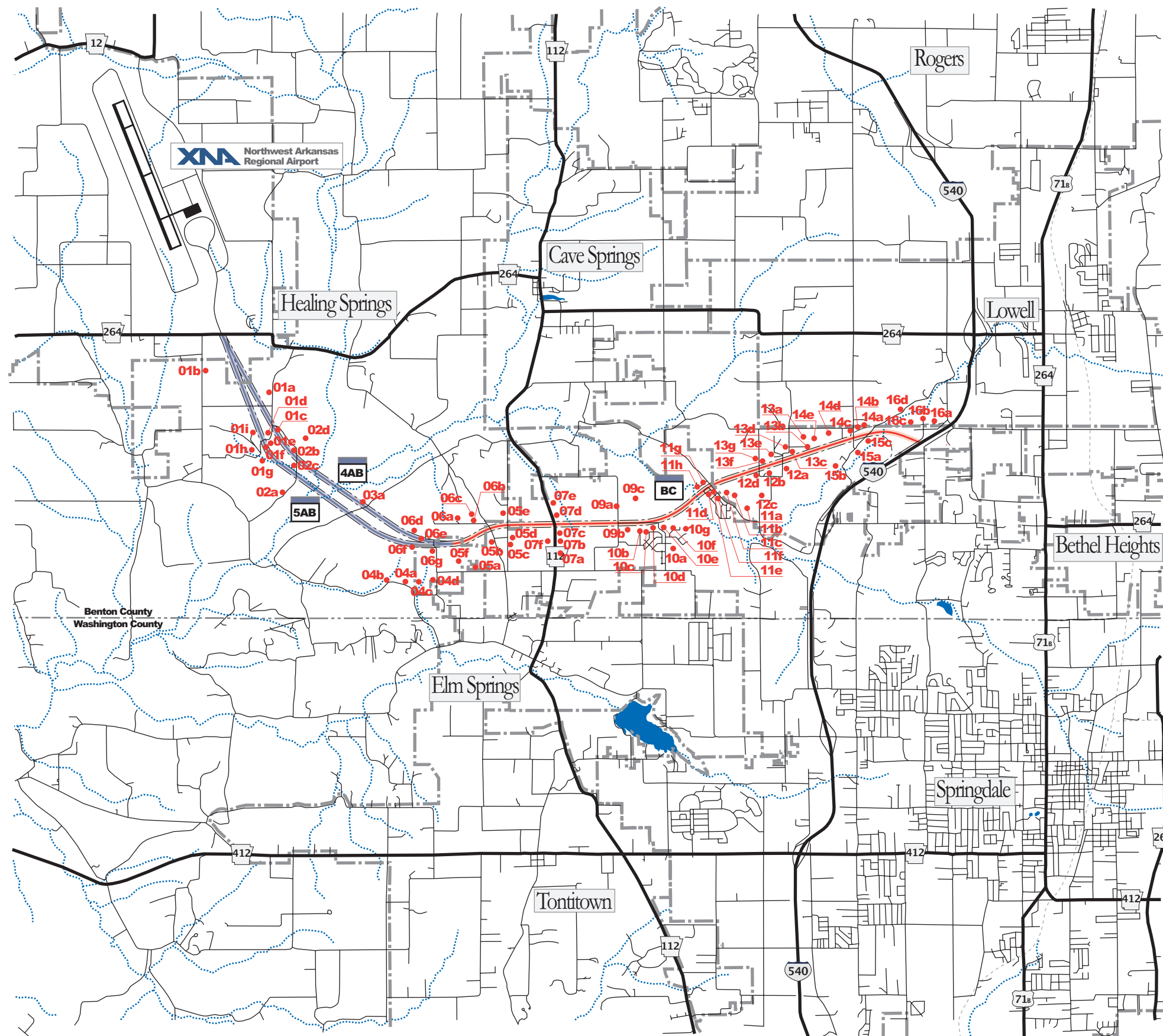


Figure D2 **Noise Analysis Sites**

- Noise Analysis Site
- AB Section AB
- BC Section BC
- I-49 Interstate Highway
- US-540 U.S. Highway
- AR-264 State Highway
- 5 Intermodal Access Road Alternatives

N
Approximate Scale
1" = 6,000'

**Northwest Arkansas
Regional Airport
Intermodal Access Road
Environmental Impact
Statement**



Table D3 presents the existing noise levels, the modeled No Action Alternative traffic noise levels, and the projected noise level increase in the future without the project over existing conditions for each analysis receptor. The number of dwelling units represented by each analysis receptor is also provided. The data indicates that future noise levels without the project are expected to increase between 0 and 5 dBA above existing conditions. The greatest increases are projected to occur at Receptors 07b and 07c, which are located adjacent to Highway 112. Community noise level changes of 3 dBA or less are generally considered to be undetectable. Changes greater than 5 dBA are considered to be detectable by most persons.

Table D3

FUTURE NO ACTION ALTERNATIVE NOISE LEVELS, IN LEQ (H)*Northwest Arkansas Regional Airport Intermodal Access Road DEIS*

Receptor	Dwelling Units	Existing	Future No Action	Increase Over Existing	Receptor	Dwelling Units	Existing	Future No Action	Increase Over Existing
01a	1	36	40	4	09c	1	40	43	3
01b	1	37	40	4	10a	1	41	44	3
01c	1	35	38	4	10b	0	40	43	3
01d	1	35	38	3	10c	n/a	40	43	3
01e	1	34	38	3	10d	0	41	43	3
01f	1	34	38	3	10e	0	41	44	3
01g	1	34	37	3	10f	0	41	44	3
01h	1	34	37	3	10g	0	41	44	3
01i	1	34	38	3	11a	1	47	47	0
02a	1	41	41	0	11b	1	47	47	0
02b	1	41	41	0	11c	1	47	47	0
02c	1	41	41	0	11d	2	47	47	0
02d	1	41	41	0	11e	3	47	47	0
03a	1	36	39	3	11f	2	47	47	0
04a	1	47	47	0	11g	1	47	47	0
04b	1	47	47	0	11h	0	47	47	0
04c	1	47	47	0	12a	2	45	48	3
04d	4	47	47	0	12b	1	45	47	2
05a	3	42	42	0	12c	1	45	47	2
05b	3	42	43	1	12d	1	45	46	1
05c	2	42	44	2	13a	2	51	51	0
05d	2	42	45	3	13b	1	51	51	0
05e	1	42	44	2	13c	4	51	51	0
05f	1	42	42	0	13d	3	51	51	0
06a	1	40	42	1	13e	2	51	51	0
06b	1	40	42	2	13f	1	51	51	0
06c	3	40	42	2	13g	1	51	51	0
06d	1	40	40	0	14a	3	60	60	0
06e	1	40	40	0	14b	1	60	60	0
06f	1	40	40	0	14c	1	60	60	0
06g	1	40	40	0	14d	1	60	60	0
07a	1	66	68	2	14e	1	60	60	0
07b	1	66	71	5	15a	1	57	57	0
07c	1	66	71	5	15b	1	57	57	0
07d	1	66	68	2	15c	1	57	57	0
07e	1	66	66	0	16a	1	62	65	3
07f	1	66	66	0	16b	1	62	62	0
09a	1	40	43	3	16c	1	62	62	0
09b	n/a	40	43	3	16d	1	62	62	0

Source: Mestre Greve Associates, 2009.

Alignment 4ABC

Table D4 presents the results of the noise modeling for Alignment 4ABC. The table lists the receptors and the number of dwelling units by the type of impact (i.e., approaching or exceeding the NAC, experiencing a substantial increase in noise, or both). The last row of the table shows the number of receptors and dwelling units impacted for each category. Both the toll and no toll options are provided. For purposes of this study, a dwelling unit includes residential structures only. It does not include any vacant platted lots within the Legendary, Spring Creek Park, and Wagon Wheel Bend subdivisions. Receptors 01c, 03a, and 06e are located within 150 feet of the proposed centerline of Alignment 4ABC. If this alignment is the selected alternative, these receptors would be within the right-of-way of the alignment and the residences represented by these receptors would be removed. Therefore, noise impacts are not assessed at these receptors for Alignment 4ABC.

With Alignment 4ABC, 49 receptors representing 57 residential units, 1 school, and 1 park building are projected to be impacted (i.e., subject to a noise level approaching or exceeding the NAC and/or subject to a substantial noise increase of 10 dBA or more due to the project) under the toll option. Under the no toll option, 51 receptors representing 59 residences, 1 school, and 1 park building are projected to be impacted.

Table D4

ALIGNMENT 4ABC ESTIMATED NOISE IMPACTED RECEPTORS*Northwest Arkansas Regional Airport Intermodal Access Road DEIS*

Approach or Exceed NAC		Toll		Both		Approach or Exceed NAC		No Toll		Both	
		Substantial Increase	Receptor					Substantial Increase	Receptor		
Receptor	DU	Receptor	DU	Receptor	DU	Receptor	DU	Receptor	DU	Receptor	DU
07a	1	01a	1	02b	1	07a	1	01a	1	02b	1
07b	1	01d	1	06d	1	07b	1	01d	1	06d	1
07c	1	01e	1	09b	n/a	07c	1	01e	1	09b	n/a
07d	1	01f	1	11d	2	07d	1	01f	1	11d	2
07e	1	01g	1	11g	1	07e	1	01g	1	11g	1
07f	1	01h	1	11h	0	07f	1	01h	1	11h	0
14b	1	01i	1	12d	1	14b	1	01i	1	12a	2
		02c	1	13b	1	14c	1	02c	1	12d	1
		02d	1	13c	4	15c	1	02d	1	13b	1
		05b	3	13f	1			05b	3	13c	4
		05c	2					05c	2	13f	1
		05d	2					05d	2		
		05e	1					05e	1		
		06a	1					06a	1		
		06b	1					06b	1		
		06c	3					06c	3		
		06f	1					06f	1		
		06g	1					06g	1		
		09a	1					09a	1		
		09c	1					09c	1		
		10b	0					10b	0		
		10c	n/a					10c	n/a		
		10d	0					10d	0		
		10e	0					10e	0		
		10f	0					10f	0		
		10g	0					10g	0		
		11e	3					11e	3		
		12a	2					12b	1		
		12b	1					13d	3		
		13d	3					13e	2		
		13e	2					13g	1		
		13g	1								
7	7	32	38	10	12	9	9	31	36	11	14

Source: Mestre Greve Associates, 2009.**Notes:** DU=Dwelling Units.

Alignment 5ABC

Table D5 presents the results of the noise modeling for Alignment 5ABC. As with Table D4, this table lists the receptors and the number of dwelling units by the type of impact (i.e., approaching or exceeding the NAC, experiencing a substantial increase in noise, or both). The last row of the table shows the number of receptors and dwelling units impacted for each category. Both the toll and no toll options are provided. Again, a dwelling unit includes residential structures only and does include the vacant platted lots within the Legendary, Spring Creek Park, and Wagon Wheel Bend subdivisions. Receptors 01f and 06f are located within 150 feet of the proposed centerline of Alignment 5ABC. As with Alignment 4ABC, the homes represented by these receptors would be removed if Alignment 5ABC is the selected alternative. Therefore, noise impacts are not assessed at these receptors for Alignment 5ABC.

With Alignment 5ABC, there are 50 receptors representing 58 residences, 1 school, and 1 park building projected to be impacted under the toll option. Under the no toll option, 52 receptors representing 61 residences, 1 school, and 1 park building are projected to be impacted

Tables D4 and D5 show that for both the toll and no toll options, slightly more residences are expected to either approach or exceed the NAC or experience a substantial increase with Alignment 5ABC than with Alignment 4ABC. Noise abatement must be considered for the impacted residences.

Table D5

ALIGNMENT 5ABC ESTIMATED NOISE IMPACTED RECEPTORS*Northwest Arkansas Regional Airport Intermodal Access Road DEIS*

Approach or Exceed NAC		Toll Substantial Increase		Both		Approach or Exceed NAC		No Toll Substantial Increase		Both	
Receptor	DU	Receptor	DU	Receptor	DU	Receptor	DU	Receptor	DU	Receptor	DU
07a	1	01a	1	01e	1	07a	1	01a	1	01e	1
07b	1	01c	1	06e	1	07b	1	01c	1	06e	1
07c	1	01d	1	09b	n/a	07c	1	01d	1	06g	1
07d	1	01g	1	11d	2	07d	1	01g	1	09b	n/a
07e	1	01h	1	11g	1	07e	1	01h	1	11d	2
07f	1	01i	1	11h	0	07f	1	01i	1	11g	1
14b	1	02a	1	12d	1	14b	1	02a	1	11h	0
		02b	1	13b	1	14c	1	02b	1	12a	2
		02c	1	13c	4	15c	1	02c	1	12d	1
		03a	1	13f	1			03a	1	13b	1
		05b	3					05b	3	13c	4
		05c	2					05c	2	13f	1
		05d	2					05d	2		
		05e	1					05e	1		
		06a	1					06a	1		
		06b	1					06b	1		
		06c	3					06c	3		
		06d	1					06d	1		
		06g	1					09a	1		
		09a	1					09c	1		
		09c	1					10b	0		
		10b	0					10c	n/a		
		10c	n/a					10d	0		
		10d	0					10e	0		
		10e	0					10f	0		
		10f	0					10g	0		
		10g	0					11e	3		
		11e	3					12b	1		
		12a	2					13d	3		
		12b	1					13e	2		
		13d	3					13g	1		
		13e	2								
		13g	1								
7	7	33	39	10	12	9	9	31	37	12	15

Source: Mestre Greve Associates, 2009.**Notes:** DU=Dwelling Units.

Construction Noise

As with any construction, highway construction will result in some short-term impacts to the environment. Construction noise represents a short-term impact on ambient noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high levels. For the proposed project, the highest noise generating activities will include clearing and grading of the roadway. As discussed previously, there are scattered residential uses all along both project alignments.

The worst-case examples of construction noise at 50 feet (15 meters) are presented in Figure D3. The peak noise level for most of the equipment that will be used during the construction is 70 to 95 dBA at a distance of 50 feet (15 meters). At 150 feet (46 meters), the peak construction noise levels range from 61 to 86 dBA. At 1,000 feet (300 meters) the peak noise levels range from 44 to 69 dBA. Note that these noise levels are based upon worst-case conditions. Actual measurements of construction equipment show that peak noise levels rarely exceed the middle of the range indicated in Figure D3.

Construction noise represents a short-term noise impact. It is not possible at this time to determine the exact length of time that grading will occur in any one area. Considering the relatively short-term nature of construction noise, impacts are not expected to be substantial.

Mitigation Measures

Federal Highway Administration noise regulations (23 CFR Part 772) require the consideration of noise abatement whenever the predicted noise levels near the project approach or exceed the criteria detailed earlier. These mitigation measures are both short-term and long-term, discussed as follows.

Long –Term Traffic Noise Impacts. For the Selected Alternative, noise abatement must be considered to reduce the noise levels for the receptors projected to experience noise levels that approach or exceed the NAC or experience a substantial noise increase due to the project. The abatement must be found feasible and reasonable to be implemented. AHTD has defined a feasible noise reduction as being a reduction of ten dBA for at least one residence.

The determination of reasonableness is a more subjective criterion than feasibility. It considers the specific circumstances of the particular project. The cost of the abatement; desire for the abatement by the benefited residences; date of the construction of the residences relative to the construction of the highway; how long the residences have been in place; and the absolute noise levels and the increases in the noise levels with the

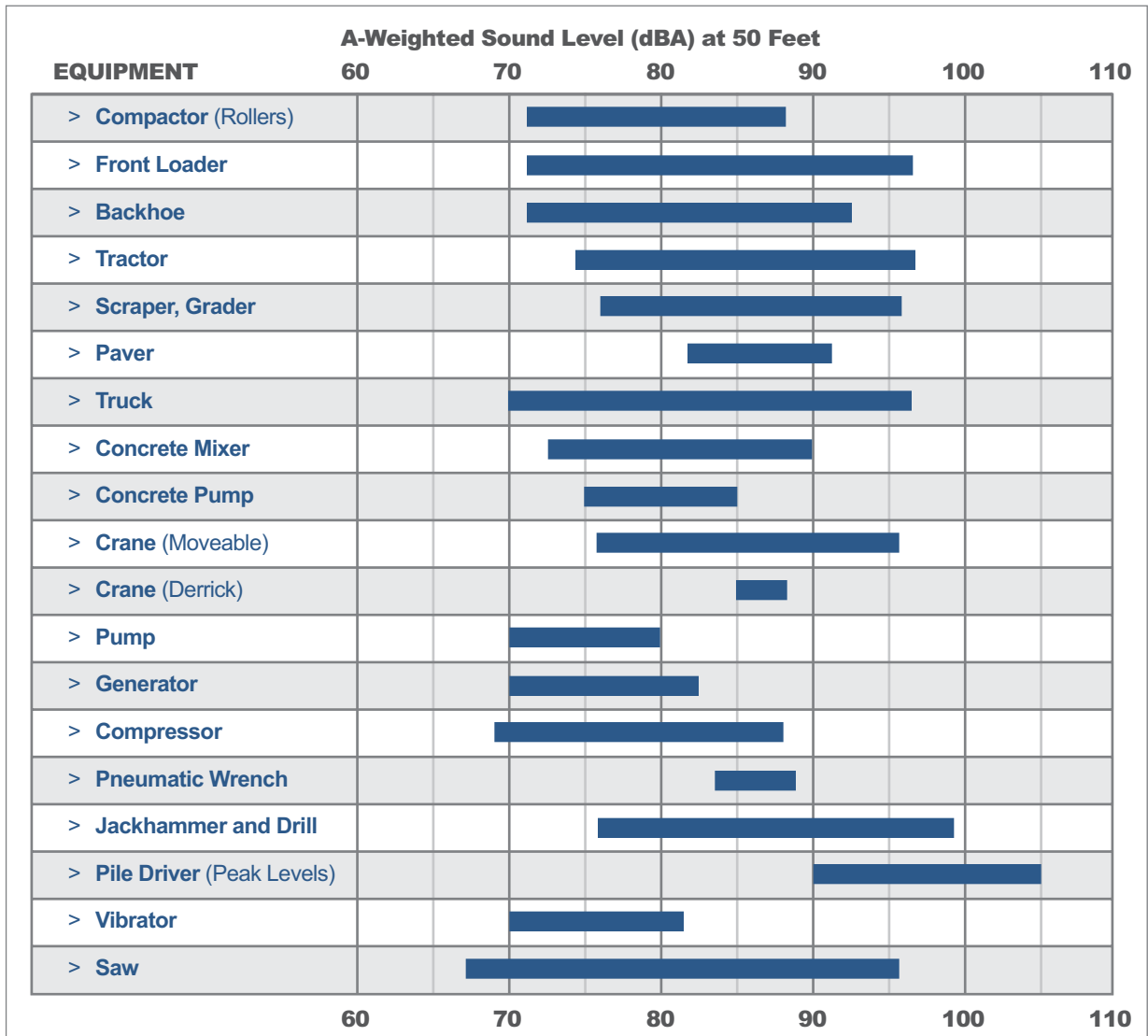


Figure D3 **Construction Noise**

Source: "Handbook of Noise Control", by Cyril Harris, 1979.

project in place compared to existing and future no action conditions are all considered in the determination of reasonableness. These seven factors are rated from a “High No” to a “High Yes” based on the criteria developed by AHTD and summarized in Appendix C1.

Various methods of noise abatement are available to minimize the potential noise impact of the project. Reduction of speed limits could be used to reduce noise generated by the roadway. However, this is seldom practical due to the resulting reduction of the roadways operational efficiency. Prohibiting or restricting truck traffic would reduce the noise generated by the roadway. However, this would not be consistent with the project’s stated Purpose and Need.

Altering the horizontal or vertical alignment of the road can also be used to limit the noise impacts. However, altering the vertical alignment is typically not practical because of the amount of material that would have to be moved to alter the vertical alignment substantially.

Acquisition of property to create buffer zones is another measure that can reduce noise impacts. This is typically cost prohibitive. Note that the currently planned roadway right-of-way is quite wide, extending approximately 150 feet (46 m) from the centerline of the roadway for most of the length for both alternative alignments.

In most cases the only practical way to mitigate highway noise is through the construction of noise barriers. Noise barriers reduce noise levels when they break the line of sight between a receiver and a noise source. The amount of noise reduction provided by the barrier is dependent on how much the noise has to bend around the barrier or, equivalently, by how much the barrier breaks the line of sight. The more the sound has to bend or the more the barrier breaks the line of sight the greater the noise reduction. Earthen berms can be used to decrease the required height of the wall or even eliminate a wall. An earthen berm with the same height as a wall will reduce noise levels more than the wall. Walls constructed on top of berms, with the same top of wall elevation as a wall not on a berm, provide the same amount of noise reduction as a lower wall height.

The AHTD’s policy of “reasonableness” and “feasibility” will be applied to the residential areas near the selected alignment that are identified as having the potential to be impacted by noise. Based upon this preliminary noise analysis, the residential development associated with the Legendary subdivision, located east of Grimsley Road and south of Miller Road, and Wagon Wheel Bend and Spring Creek Park subdivisions, located south of Wagon Wheel Road near Sharp Springs Road, warrant additional and detailed studies for noise barrier analysis.

This detailed noise mitigation analysis will be conducted as part of the design phase of the selected alignment. The focus of this analysis will be in the segments that currently have existing and/or expanding residential development. The current residential development within the study area is increasing the number of sensitive receptors on a continuing basis. These changes will be evaluated and considered during the noise barrier feasibility evaluation.

If the toll option is selected, detailed evaluation on toll plaza locations and identified impacts will be performed. These toll plazas will have unique noise characteristics including braking, gearing, and engine noises that are difficult to mitigate. An evaluation to determine if noise barrier systems are warranted will be conducted as part of the project's detailed design and presented at the design public hearing.

Socioeconomic

The following sections address potential socioeconomic impacts such as economics, community infrastructure, social, and environmental justice.

Economic Impacts

Quantifiable economic impacts of the construction of a new Intermodal Access Road flow from: a) the land acquisition required for the selected route, b) the diversion of traffic from the existing route, c) the use of the improved route and d) certain non-quantifiable factors. The following section will present a summary comparison of the two alternative alignments (Alignment 4ABC and Alignment 5ABC) from the report entitled *Estimated Economic Impacts for the Northwest Arkansas Regional Airport Alternative Access Road Corridors* included in Appendix D1. The quantified impacts in Tables D6 and D6 are for the period 2007 through 2027 and include both the economic benefits and the project costs. The estimated impacts in both tables are stated in terms of 2007 dollars. In Table D7, the impacts are presented in terms of the present value as of 2007, using a 7% rate of discount¹.

¹ Treatment of Value of Life and Injuries in Preparing Economic Evaluations, U.S. Department of Transportation, January 8, 1993

Summary of Economic Impacts

The net totals of the quantified economic benefits, costs, and net impacts are \$639 million (\$526 million for toll option) for Alignment 4ABC and \$620 million (\$510 million toll option) for Alignment 5ABC. These amounts result to an annual yield on the investment (right-of-way, construction and operating and maintenance expenditures) of approximately 10.9% and 10.7% for 4ABC and 5ABC, respectively.¹ The present values of the net totals of the quantified economic benefits are \$235 million (\$184 million for toll option) for Alignment 4ABC and \$227 million (\$176 million for toll option) for Alignment 5ABC. These present values, when compared to the present values of the project investment, result in annual returns of approximately 6.9% for Alignment 4ABC and 6.7% for Alignment 5ABC.

Another way to view the economic performance of a project is in terms of the number of years required for the positive economic benefits to repay the costs of the investment. Before considering the time value of money (Table D6), the costs of the investment in the access road will be recovered by its positive economic benefits in its fourth year of operations (2013). When the benefits and costs are reduced to their present values (Table D7), the positive economic benefits will be sufficient to recover the cost of the investment in the Intermodal Access Road's fifth year of operations (2014).

As a result of the close proximity of Alignments 4ABC and 5ABC, any non-quantified economic impacts are expected to be either the same or similar. Thus, the differences in the quantified net impacts should be a reasonable basis for comparing the economic impacts of the two alternative alignments.

¹ The rate of return is actually in excess of this since the calculation assumes that all investments are made at the outset of the project.

Table D6
SUMMARY OF QUANTIFIED ECONOMIC IMPACTS AND COSTS
Northwest Arkansas Regional Airport Intermodal Access Road DEIS

	Alignment 4ABC			Alignment 5ABC		
	Total Economic Impact	Project Costs	Net Impact	Total Economic Impact	Project Costs	Net Impact
No Toll	\$731,245,229	\$92,697,574	\$638,547,655	\$713,491,663	\$93,208,936	\$620,282,727
Toll	\$624,800,029	\$98,597,574	\$526,202,455	\$609,572,598	\$99,108,936	\$510,463,662

Table D7
PRESENT VALUE OF NET QUANTIFIED ECONOMIC IMPACTS
Northwest Arkansas Regional Airport Intermodal Access Road DEIS

	Alignment 4ABC		Alignment 5ABC	
	Net Quantified Economic Impact	Present Value of Net Impact	Net Quantified Economic Impact	Present Value of Net Impact
No Toll	\$638,547,655	\$234,832,832	\$620,282,727	\$226,614,447
Toll	\$526,202,455	\$183,559,886	\$510,463,662	\$176,487,459

Social Impacts

A new Intermodal Access Road to the Airport would have impacts on the social environment of the communities and region through which it passes. Such impacts are direct and indirect, and are primarily related to noise, visual effects, residential relocations, and division by the facility. However, the build alternatives were specifically developed and located to minimize community, residential, and business impacts while attempting to maximize public access to the new transportation facility and working with the design constraints throughout the project area. The following describes the social impacts that could be experienced as a result of the construction of the Intermodal Access Road.

As discussed in the *Purpose and Need* chapter, the study area is expected to continue to experience population growth and urban development. Some of the anticipated development near the NWARA may be related to the implementation of plans for an improved Intermodal Access Road. The study area will gradually become more

urbanized and less rural. With careful planning, the pleasant natural environment that attracts new residents and recreationists can be protected from many of the negative impacts of development.

The retention of the existing alignment (the No Action Alternative) would lead to increased traffic congestion and travel time, the greater potential for vehicle accidents, and inconvenience and frustration for those using the existing highway system. No displacements and relocation would occur; thus no compensation or assistance would be required and family life of households near the road would remain the same. Some quality of life would be lost because of the increasing congestion on the existing road.

Population and Trends

An increase in population is the primary indirect social impact of the new Intermodal Access Road. While most of the increase in population should be attributed to the new Airport, a small increment of that increase should be attributed to an improved Intermodal Access Road. Although Washington County is more urbanized today, Benton County is likely to surpass its neighbor in population and urbanization over the next decade or two.

Housing and Household Characteristics

As population increases, the demand for housing will continue rising. Housing values are likely to increase over time, even though that factor is also influenced by state and national trends, as well as by regional demand. Household size will continue to decrease slightly, though the area will probably lag behind the state as a whole in the rate of decrease. Household size will not be affected by the implementation of the proposed roadway improvements.

Income, Employment Characteristics, Occupations, Business and Industry

Household income will continue to rise in the study area; a small increment of that increase would be attributable to the proposed new Intermodal Access Road. Depending on the types of businesses locating near the Airport, the study area median income could increase. More jobs in professional services and in high technology manufacturing would result in a higher median household income for the area.

Governance

The various forms of county and city governments will still be present in the study area. With increased urban and commercial development, revenues to the County and the cities will increase.

Public Facilities and Services

Increased population will place greater demands on public facilities and services and cultural resources. Public park acreage and facilities will need to be increased to meet greater demand. Public education facilities and staff would need to be added, particularly if the mix of new residents in the area had a smaller proportion of retirees than at present. An increase in the number of public safety officers (fire and police) can be expected.

Health, Medical Care, and Emergency Services

Increased population will also place greater demands on health and medical care and emergency services in the study area. Additional facilities to meet the demand will need to be constructed. Some of the services now provided by volunteers (e.g., the volunteer fire and paramedical services) will likely be provided in the future by paid staff.

Transportation

After completion of the Intermodal Access Road, transportation in and out of the NWARA will certainly improve in convenience and accessibility. Implementation of either Alignment 4ABC or 5ABC would require the closing and/or relocation of several county roads. Other roadway improvements – some underway at this time and some planned for the near future – will also improve accessibility in the area. The net result of these road closings, relocations, and the improved access road will be more efficient travel in the Airport area. However, these improvements and any new roadways will also result in some loss of land currently used for agriculture, forestry, residential, and commercial purposes. Because the area is presently very strong in truck freight service and will begin to see more air-freight use, railway freight in the area is not likely to increase. This is expected to continue to be the case even with potentially higher gasoline and diesel fuel cost. The reason is that much of the truck freight originates, or is destined for this area rather than ‘passing through’. This truck freight is considered ‘short-haul’ rather than ‘long haul’, which could perhaps be shipped more cost effectively as rail freight.

Social Environment and Community Cohesion

As population growth and urbanization continue, the rural nature of the area will decline and some individuals will perceive that the area has changed in character. It is likely church and family activities and events will be supplemented by an increased number of community activities in the long term. With increased population, the area’s residents

will lose some of the ‘close-knit’ relationships that are now evident and community cohesion will be less apparent.

The communities of Highfill, Elm Springs, and Cave Springs are expected to grow in size and population and will begin to supply more of the business products and services required by their own residents. It is possible that public education facilities will be constructed in these jurisdictions, bringing to those towns the social and community events customarily associated with community-based public schools.

One factor affecting community cohesion is the termination or severance of roads. Street severance can cause the isolation of portions of communities. Grade separations (overpasses) will be used to minimize community and neighborhood impacts caused by street severance, where it is economically feasible. County roads and state highways will be considered for grade separations or realignment to maintain nearby access. However, the construction of the Intermodal Access Road will require some road severance. Figures D6 and D7 illustrate the planned locations of the road closures and relocations.

The two build alignments, Alignments 4ABC and 5ABC, were initially planned and designed so as not to split communities, neighborhoods, or incorporated cities/towns. However, since the SNB FEIS and ROD were issued, three new residential subdivisions, Legendary, Wagon Wheel Bend, and Spring Creek Park, have been developed near or within the planned alignment of the Intermodal Access Road section that is co-located with the SNB. Subsequent to the SNB Location Public Hearing conducted by the AHTD, an alignment adjustment was made to the SNB that would reduce the impact to these subdivisions. While the Wagon Wheel Bend subdivision is located in close proximity to the SNB/Intermodal Access Road, no lots are within the planned right-of-way. The preliminary plat for the Legendary subdivision indicated the SNB would split the subdivision roughly in half, with residential development to both the south and north of the SNB, and provided a 150-foot (45-meter) wide corridor for the construction of the SNB. However, the final plat on file with Springdale does not retain the northern phases of the subdivision, which indicates that there might not be any disruption to the planned phases of this subdivision, depending upon when right-of-way acquisition occurs. There are approximately 15 lots (two containing residential units) within the northwest portion of the Spring Creek Park subdivision that are within the right-of-way of the roadway, and will therefore need to be acquired. However, the remainder of the subdivision will remain intact and should not be affected socially (i.e., the neighborhood is not split).

Temporary Social Impacts

During construction, either of the two alignments will result in temporary inconvenience to travelers and time delays due to existing roadway crossing, closing, and relocations. The inconvenience and time delays can be mitigated by implementing traffic

maintenance procedures, providing and encouraging the use of alternate routes and detours, and by minimizing confusion to the users, especially during peak hours.

Relocations

Relocation impacts are among the most sensitive of community-related effects associated with transportation improvements because they involve modifying relationships between people and their neighbors. The removal of families from neighborhoods, or businesses from their existing locations, affects not only the relocatees themselves, but also those who remain in the affected neighborhood and those who live in the new areas where the relocatees will live.

The most obvious impact associated with relocations is the displacement of residents. The severity of displacement impacts varies greatly with the people involved and impacts are often related to demographic characteristics. If a person is highly mobile and has had a history of changing residences frequently, the impact may be only an inconvenience. If the community is stable and cohesive, and residents have been in their homes for many years, many of those displaced may have a difficult time adjusting to new homes and neighborhoods because they have a strong attachment to their existing home and neighborhood. Financial assistance will help offset the adverse economic impacts of residential relocation. However, the adverse psychological and social impacts of relocation have understandably been more difficult to mitigate. Certain population groups such as senior citizens, low income residents, and limited English speaking people often have strong community ties and depend on primary social relationships and important support networks that can be severed upon relocation. Households with school age children may consider relocation especially disruptive if school transfers would be involved. Disabled people and those without automobile transportation often have special relocation problems.

Residential relocations would be disruptive to family life and quality of life of those affected. However, the acquisition and relocation of those households and businesses would be undertaken in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. This Act provides for compensation for acquisition of property and relocation financial assistance.

Alignment 4ABC

The land use impacts associated with the development of Alignment 4ABC are primarily rural residential and agricultural. Heavily developed areas were avoided to the extent possible during the alignment development process. However, as mentioned previously, three subdivisions have been developed near or within the SNB right-of-way since the SNB FEIS and ROD were issued. Only those lots that are currently developed (i.e.,

contain residential units) are included in this relocations analysis. There will be approximately 35 residential units directly impacted and 21 other structures displaced, including a water tower owned by the Washington Water Authority and a horse arena.

Alignment 5ABC

Land uses adjacent to Alignment 5ABC are primarily rural residential and agricultural. Again, heavily developed areas, to the extent possible, were avoided in the alignment development process. As with Alignment 4ABC, Alignment 5ABC is located near or within the three recently developed subdivisions, but only those lots currently containing residential units have been included in this relocations analysis. There would be approximately 33 residential structures displaced and 15 other structures displaced, including the horse arena.

No Action Alternative

The No Action Alternative is representative of no improvements to the existing access system of highways and no construction of any new access roads. The land use impacts associated with the No Action Alternative will be no different than they are presently. There will be no direct or indirect impacts to land uses associated with this alternative. However, there will be some social impacts, as listed in Table D7, which include increased traffic on the existing highway network, increased crashes, and slowed growth due to congestion.

Conclusions

Table D8, entitled *SUMMARY OF DIRECT/INDIRECT SOCIAL IMPACTS*, details the social impacts, both the direct and indirect, of the alternative alignments. One of the top priorities of the alternatives development process was to minimize relocation impacts to the extent possible. Relocations will be mitigated according to the provisions in the Uniform Relocation and Real Property Acquisition Policies Act (URARPAPA) of 1970, as amended, as administered by the Northwest Arkansas Regional Airport Authority. The Authority will be responsible for the oversight of the relocation assistance program through the use of a consultant that has experience in relocation assistance and all facets of URARPAPA. This program will provide financial assistance for relocation expense, and advisory assistance in relocation resources available within the area. Relocation resources will be available to all residential and business relocatees without discrimination.

Table D8

SUMMARY OF DIRECT/INDIRECT SOCIAL IMPACTS*Northwest Arkansas Regional Airport Intermodal Access Road DEIS*

Alternative	Direct Impacts	Indirect Impacts
No Action	Traffic Congestion, Accidents	Slowed growth caused by congestion
Alignment 4ABC		
Toll	35 Residential Displacements 21 Other Displacements Improved Transportation	Localized inconvenience due to road severance; potential loss of income, modest population increase, increased housing demand, increase in development, increased demand for public facilities/services.
No Toll	Same as Toll except increase in traffic	Same as Toll
Alignment 5ABC		
Toll	33 Residential Displacements 15 Other Displacements Improved Transportation	Localized inconvenience due to road severance; potential loss of income, modest population increase, increased housing demand, increase in development, increased demand for public facilities/services.
No Toll	Same as Toll except increase in traffic	Same as Toll

Source: Barnard Dunkelberg & Company, 2009.

A housing inventory conducted for the SNB FEIS indicated that sufficient comparable, decent, safe, and sanitary replacement housing exists within the study area at that time. According to recent data, there are over 25,000 residential lots available for the construction of new homes in active subdivisions in Benton and Washington Counties. This is in addition to approximately 2,775 completed new homes for sale. There were over 700 new residential building permits issued in the two-county area during the same timeframe. The sales price of homes in Benton County was slightly less than \$200,000 and for Washington County it was approximately \$175,000 in the first three months of 2007¹. Therefore, it can be concluded that sufficient comparable, decent, safe, and

¹ Q1 2007 Residential Skyline Report. Center for Business and Economic Research, Walton College of Business, University of Arkansas, Fayetteville, May 2007.

sanitary replacement housing still exists, even with the additional displacements required by the combination of the SNB and the Intermodal Access Road. This information will be further refined when the project is undergoing design and right-of-way is being purchased.

The SNB inventory also determined that the dwellings and sites were in an area not less desirable in regards to public utilities and public and commercial facilities, reasonably accessible to places of employment, adequate to accommodate those people displaced, and in neighborhoods not subject to unreasonably adverse environmental factors. Special attention will be given to elderly and low-income persons to ensure that replacement housing will be obtained that are within their economic means and within the same areas, resulting in minimal psychological adjustment problems.

Environmental Justice, Title VI, and Children's Environmental Health and Safety Risks

Executive Order 12898, *Environmental Justice*, states, "No minority, age, or income group should be disproportionately affected by a Federal Action." Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, and national origin. Further laws, based on Title VI, extended civil rights legislation to prohibit discrimination on the basis of sex, disability, and age. Guidance contained in Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, provides that each federal agency identify, assess, and address the environmental health and safety risks that may disproportionately affect children.

Field observations and demographic data suggest that the implementation of any of the alternative alignments or segments would not adversely affect racial minority populations, the elderly, those households with annual incomes below the poverty level, or the disabled population disproportionately to their numbers in the general population of the alignment. Alignments 4ABC and 5ABC will not create a situation or produce a substance that children will likely come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to on a frequent basis.

There is little residential development located along Sections 4AB and 5AB and disproportionate adverse impacts are not expected along these sections. The SNB FEIS and ROD included an impact analysis for the Selected Alignment Alternative that Section BC follows, and it was determined that the Selected Alignment Alternative would not have a disproportionate adverse impact on low-income populations. The Intermodal Access Road public involvement process did not exclude any individuals due to income, race, color, religion, national origin, sex, age, or disability. Therefore, this document is in

compliance with FHWA policies to determine whether a proposed project will have any adverse impact on minority or low-income populations and meets the requirements of Executive Order 12898, Title VI of the Civil Rights Act of 1964, and Executive Order 13045.

Steps to minimize relocation will be considered during final project design. Where avoidance is not possible, the acquisition and relocation process will be conducted in accordance with the Uniform Relocation and Real Property Acquisition Policies Act (URARPAPA) of 1970. Relocation resources will be available to all residents and businesses without discrimination and comparable to the need of the relocatees.

All transportation users generally select their travel routes and modes of transportation based on convenience, cost, time, and to a certain extent, personal preferences. Individuals on lower incomes will generally select alternatives that offer lower initial cost, such as no toll alternatives, whether it is a road, transit, or other means, assuming there are other acceptable options. While this choice may result in longer travel time and even in some cases greater overall cost when travel time is considered, the lower initial cost will be the basis of decision. In this case, they will tend to choose the existing roadway system over the Intermodal Access Road if no toll is collected.

Secondary and Cumulative Impacts

The SNB FEIS stated that potential secondary and cumulative socioeconomic impacts could occur with the relocation of four homes at the interchange between the Intermodal Access Road and the SNB.

Natural Environment and Resources

The following section discusses those features and resources of the natural environment that could potentially be impacted by the proposed development.

Floodplain Impacts

Protection of floodplains and floodways is mandated by Executive Order 11988 – *Floodplain Management* and implemented under 23 CFR 650, Subpart A. The intent of these regulations is to avoid or minimize encroachments within the 100-year (base) floodplain, where practicable, and to avoid supporting (or encouraging) land use development that is incompatible with floodplain values. Where encroachment is

unavoidable, the regulations require the project agency to take appropriate measures to minimize impacts.

100-year floodplains are those areas subject to a one percent or greater chance of flooding in any given year, i.e., an area that would be inundated by a 100-year flood. Floodways, which are designated by federal, state, or local ordinance, are defined as floodplain areas that are reserved in a manner (i.e., unconfined or unobstructed either horizontally or vertically) to provide for the discharge of the base flood so that the cumulative increase in water surface elevation does not exceed a designated height. Floodplain values may include fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

Methodology

Federal Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency (FEMA) were used to identify the 100-year floodplain and floodways in the study area. The locations of the floodplains and floodways were then compared to the locations of Sections 4AB, 5AB, and BC to determine potential impacts.

Summary

Floodplains in the project area that may be affected by the proposed project are associated with Little Osage, Osage, Puppy, and Spring Creeks. Figure D4 presents the floodplain impacts for Sections 4AB, 5AB, and BC. Table D9 summarizes the floodplains and floodways that are located within the anticipated approximate 300-foot (90-m) right-of-way for each section.

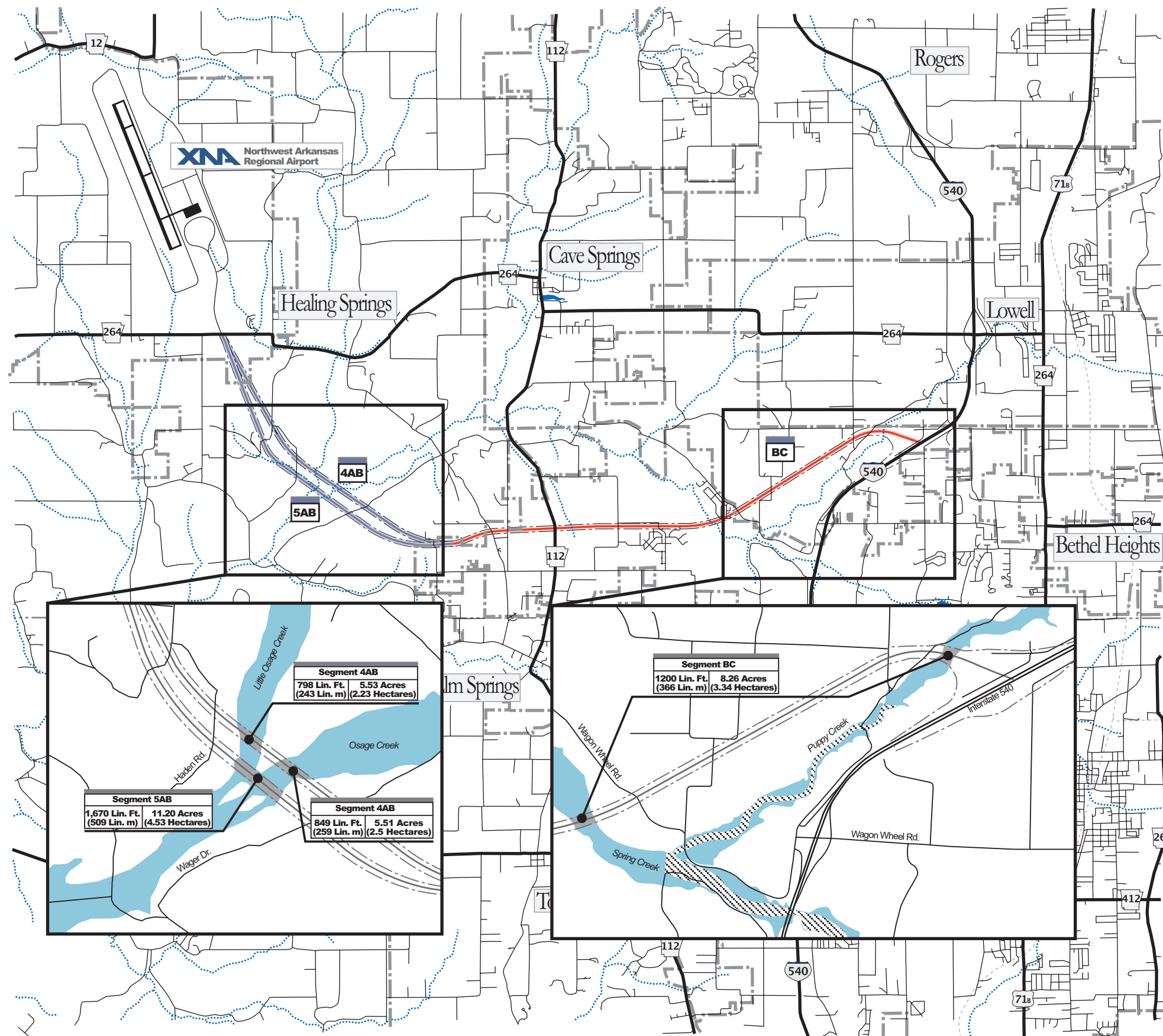


Figure D4 100-Year Floodplain Impacts Map

- Floodplain
- Floodway
- Section AB
- Section BC
- Interstate Highway
- U.S. Highway
- State Highway
- Intermodal Access Road Alternatives

N
Approximate Scale
1" = 6,000'

**Northwest Arkansas
Regional Airport
Intermodal Access Road
Environmental Impact
Statement**



Table D9

100-YEAR FLOODPLAIN IMPACTS BY SECTION*Northwest Arkansas Regional Airport Intermodal Access Road DEIS*

Alternative	Floodplain		Floodway	
	Linear Feet	Acres	Linear Feet	Acres
No Action	0	0	0	0
Section 4AB	1,647 (502 m)	11.04 (4.73 hectare)	0	0
Section 5AB	1,670 (509 m)	11.20 (4.53 hectare)	0	0
Section BC	1,200 (366 m)	8.26 (3.34 hectare)	200 (61 m)	1.38 (0.56 hectare)

The actual areas affected by the proposed project will be smaller since construction will only occur in portions of the right-of-way within the alignment. In addition, local ordinances restrict construction in floodway zones. There will be no difference in impact between the toll/no toll options.

Section 4AB. Section 4AB includes 5.53 acres (2.23 hectares) of floodplain associated with Little Osage Creek. Section 4AB also includes 5.51 acres (2.50 hectares) of floodplain associated with Osage Creek. No secondary impacts due to floodplain development are anticipated since there will be no direct access to the highway in these areas.

Section 5AB. Section 5AB includes 11.20 acres (4.53 hectares) of floodplain associated with Little Osage Creek. No secondary impacts due to floodplain development are anticipated since there will be no direct access to the highway in these areas.

Section BC. Section BC includes 8.26 acres (3.34 hectares) of floodplain associated with Osage and Puppy Creeks, and 1.38 acres (0.56 hectares) of floodway.

Secondary impacts to floodplains can result when development occurs around new interchange areas that accommodate or promote adjacent secondary development. The interchange between the Intermodal Access Roadway and I-540 will function as a system-to-system connection and as such will not promote secondary development, as access to adjacent property will not be provided. Therefore secondary impacts due to floodplain development are not anticipated since there will be no direct access to the highway in these areas.

No Action. The No Action Alternative would have no impact on floodplains or floodways.

Mitigation

Areas sensitive to local flooding will be identified during the design phase of the project. If areas of severe flooding are identified, imposed design criteria may be more restrictive than those specified in local floodplain ordinances. During the project design, hydraulic data and construction plans will be submitted to the Arkansas State Highway and Transportation Department, as well as city and county officials for review, approval, and permitting as specified by local floodplain ordinances. In addition, the proposed highway will be designed to avoid overtopping by the 100-year flood, thus minimizing the potential for interruption or termination due to flooding. Similar mitigation is proposed in the SNB FEIS and ROD for Section BC.

Other potential measures to reduce floodplain impacts include:

- 1) Avoiding longitudinal encroachments when possible.
- 2) Sufficient bridging to minimize adverse effects from backwater.
- 3) Sufficient bridging to minimize increases in water velocity.
- 4) Minimizing channel alternations.
- 5) Adequate and timely erosion control to minimize erosion and sedimentation.
- 6) Using standard specifications for controlling work in and around streams to minimize adverse water quality impacts.

For all of the streams identified, bridging and/or other large drainage structures will be used to span most of the streams' natural floodplains in order to comply with the local floodplain development ordinance restrictions on increasing upstream flood depths. The construction will not cause a significant reduction of floodwater storage or retention functions. Bridges and/or drainage structures will be sized sufficiently to minimize impacts on natural and beneficial floodplain values. The project will be designed so as to minimize adverse impacts to streams, and to correct any project-related impacts that may destroy, diminish, or impair the character and function of those streams.

Wetlands and Waters of the U.S.

The Clean Water Act of 1972, as amended, is the regulatory authority over all activities in "waters of the United States", which includes jurisdictional wetlands and other special aquatic sites. Section 404 of the Act specifically regulates the discharge of dredged or fill materials into such areas. In addition, Presidential Executive Order (EO) 11990, entitled *Protection of Wetlands* (1977), established a National Policy to avoid to the extent possible the long-term and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in

wetlands wherever there is a practical alternative. The U.S. Department of Transportation has implemented EO 11990 in USDOT Order 5660.1A, *Preservation of the Nations Wetlands* (1978). Implementation is also promulgated under Federal Highway Administration (FHWA) Technical Advisory T6640.8A (1987).

Wetlands are protected under Section 404 of the Clean Water Act of 1972, as amended. In addition, Executive Order 11990, *Protection of Wetlands*, is implemented by DOT Order 5660.1A, *Preservation of the Nation's Wetlands*, and requires federal agencies to avoid, to the maximum extent possible, the adverse effects associated with the destruction or modification of wetlands wherever there is a practical alternative. For the proposed project, impacts to wetlands could occur from the discharge of dredged or fill material to wetland areas. The U.S. Army Corps of Engineers has jurisdiction for permitting discharges of dredged or fill material to wetlands and other waters of the United States.

The U.S. Army Corps of Engineers *Wetlands Delineation Manual* (1987 Manual) (U.S. Army Corps of Engineers, 1987) defines wetlands as “Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands can include old creek or river channels, sloughs, swamps, bogs, ponded pasture areas, and seep areas. Three characteristics must be present for a wetland to exist. These are 1) the presence of hydric soils; 2) hydrophytic vegetation; and 3) wetland hydrology.” Any discharge of dredged or fill material into wetlands as a result of this project is subject to regulation under the Clean Water Act.

Methodology

Wetland areas were initially identified using published data and mapping by local, state, and federal agencies. Published data and mapping included U.S. Fish and Wildlife Service NWI mapping, aerial photography, USGS topographic quadrangle mapping, county soil survey mapping, and county hydric soils listings. For each alternative alignment, potential impacts to wetlands would be limited to the actual right-of-way because construction activities would not occur outside the right-of-way. Based on the conceptual design an approximate 300-foot (90-m) right-of-way for each alternative alignment was evaluated for potential wetland impacts.

An initial limited field reconnaissance along Sections 4AB and 5AB was conducted to verify the locations and interpretations of published data and mapping and to identify wetlands, if any, that did not appear in published information. The 1987 Manual was utilized for guidance to determine the locations of jurisdictional wetlands along the alternative alignments. Jurisdictional wetlands along the alternative alignments were also classified utilizing the U.S. Fish and Wildlife Service's *Classification of Wetlands and Deep*

Water Habitats of the United States (1979). Once Section BC was identified by the AHTD as the preferred alignment for the SNB, published data and mapping as described above was again reviewed to determine impacts to wetlands.

Impacts

The primary impact of construction and operation activities on wetlands would be the permanent filling of wetlands within the proposed right-of-way of the alignment. Construction and operation activities that fill wetlands would permanently destroy the ecological and hydrologic values and functions of the wetlands. The clearing of vegetation and filling of wetlands may result in the loss of wildlife habitat associated with these areas. There would be no difference in impacts between the toll/no toll options.

Each alternative alignment would cross several artificially created farm ponds that are primarily used to provide a source of drinking water for cattle. These farm ponds have been created either by diking/impounding soil around low-lying areas to hold water or by excavating the ground surface and using the excavated material to create a berm around the area to hold water. None of these farm ponds are fed by stream channels or are hydrologically connected to other bodies of water. Therefore, these farm ponds are considered to be isolated waterbodies and are not wetlands or waters of the U.S. that are subject to the jurisdiction of the U.S. Army Corps of Engineers.

Sections 4AB and 5AB. Although both Sections 4AB and 5AB cross Osage Creek and Little Osage Creek, which are considered Waters of the U.S., there are no wetlands impacts created by either alignment section. A U.S. Army Corps of Engineers Section 404 permit will be required for construction in both of these creeks.

Section BC. Section BC crosses Spring Creek and Puppy Creek, which are considered Waters of the U.S. There are no wetlands impacts created by this alignment. A U.S. Army Corps of Engineers Section 404 permit will be required for construction in both of these creeks.

No Action. The No Action Alternative would not result in any impacts to wetlands.

Mitigation

Commitments to protect wetlands and stream crossings will include:

- Wetlands areas will be avoided to the maximum extent practical.
- Wetlands outside the construction limits will not be used for construction support activities (i.e., borrow sites, waste sites, storage, parking access, etc).
- Heavy equipment working in wetlands will be placed on mats.

- Design stream crossing structures that minimize or eliminate the need to physically alter the water courses. For example, use of longer spans could minimize the need to drill piers into the stream.
- An NPDES permit for stormwater discharge will be obtained from the Arkansas Department of Environmental Quality. A site-specific Stormwater Pollution Prevention Plan (SWPPP) will be prepared and implemented in accordance with the requirements of the permit. The SWPPP will include all specifications and best management practices (BMPs) needed to control erosion and sedimentation. In order to select the most appropriate BMPs, the SWPPP will be prepared during the design phase. Options for long-term stormwater management, such as vegetated swales, will also be selected during the design phase.
- Minimize the removal of vegetation during construction and re-vegetate disturbed areas as quickly as possible in order to reduce soil erosion.
- Temporary work ramps or haul roads, when needed, will provide sufficient waterway openings to allow the passage of expected high flows.
- Silt fences, hay bale barriers, and other erosion control devices will be installed during construction to minimize erosion

Surface Water Quality

The Clean Water Act, as amended, regulates discharges to waters of the United States. The sections of the Clean Water Act that are applicable to the proposed project include:

- Section 401 – Water Quality Certification
- Section 402 – National Pollutant Discharge Elimination System (NPDES) for Construction Activities
- Section 404 – Permits for Dredged or Fill Material

Sections 401 and 404 are primarily associated with stream crossings and dredge and fill activities in waters of the United States, including wetlands. NPDES stormwater permits are required for construction projects that disturb one or more acres of land. There would be no difference in surface water quality impacts between the toll/no toll options.

Methodology

Published data and mapping by local, state, and federal agencies was initially used to identify streams and springs that may be affected by the proposed project. Published data and mapping included U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) maps, aerial photography, and U.S. Geological Survey (USGS) topographic quadrangle maps. Field reconnaissance along the proposed alignments was conducted to

verify the interpretations of published data. Any springs or streams noted in the published documents within the corridor were visually observed during this field reconnaissance for verification, and are illustrated on Figure D5..

Surface Water Impacts

The primary short-term impacts of the proposed action on water quality would be potential increased erosion and sedimentation during construction resulting in localized, adverse water quality impacts. The primary long-term impacts of the proposed action are associated with stormwater runoff and vehicle accidents resulting in hazardous materials spills.

Stormwater runoff from roadways typically contains solids, heavy metals, nutrients, oil and grease, and other pollutants. Other sources of stormwater runoff include facility use, maintenance, natural sources, and deposition of air pollutants. Pollutants such as solids, heavy metals, and organics are typically related to traffic volume, while other pollutants, like herbicides and nutrients, are associated with highway maintenance and adjacent land use activities. Accidental spills of petroleum products such as lubricants, fuel, and other hazardous materials may occur during construction or operation of the proposed highway.

The effects of highway stormwater runoff on streams are variable and dependent on the length of time since the last storm event, the quality and quantity of stormwater runoff conveyed to the stream, volume of flow in the stream, and the duration of the storm event, and traffic volume. Highway runoff may adversely affect the water quality through short-term loadings associated with the storm events and through chronic effects as a result of long-term accumulation and exposure. However, secondary impacts following construction are not expected to increase substantially from those generated by traffic on roads in the project area.

The proposed project will be designed to minimize potential impacts to local water quality from runoff both during construction and when the facility is in operation. General measures to be used to manage highway storm water runoff include curb elimination, litter control, good management usage of deicing chemicals and herbicides, establishment and maintenance of vegetation, and reducing direct discharges to receiving waters wherever practicable.

Specific measures to be considered and used for management of a potential pollution problem include grassed channels, overland flow through vegetation, wet detention basins, infiltration basins, and wetlands.

Sections 4AB and 5AB. No known springs are located within the proposed alignment for either section. Both sections cross Osage Creek and Little Osage Creek, and bridge lengths to cross the two creeks would be 500 feet (152 meters) and 400 feet (121 meters), respectively. Little Osage Creek has been designated as an Ecologically Sensitive Waterbody by the Arkansas Department of Environmental Quality, and both creeks are considered Waters of the U.S. A U.S. Army Corps of Engineers Section 404 permit will be required prior to construction in the streams. Additionally, tributaries to these streams will be maintained and culverts designed and constructed to pass their flows. Any temporary work roads required during construction will have temporary culverts installed to allow passage of flows. Also, these work roads will be routed around any springs to preserve their condition.

Section BC. No known springs are located within the proposed alignment for this section. This section crosses Spring Creek and Puppy Creek, and bridge lengths to cross the two creeks would be 600 feet (183 meters) and 400 feet (121 meters), respectively. Both creeks are considered Waters of the U.S. and it is possible that a U.S. Army Corps of Engineers Section 404 permit would be required prior to construction near the streams. Additionally, tributaries to these streams will be maintained and culverts designed and constructed to pass their flows. Any temporary work roads required during construction will have temporary culverts installed to allow passage of flows. Also, these work roads will be routed around any springs to preserve their condition.

No Action. The No Action Alternative would not affect water quality in the project area due to construction. However, traffic volumes on the existing roadway system are expected to increase, thus increasing the concentration of pollutants in stormwater runoff and the potential for hazardous material spills.

The location of known springs and stream crossings are illustrated on Figure D5.

Mitigation

Each of the three sections have the potential to impact surface water quality in the study area. Measures that will be taken to eliminate or minimize these impacts include, but are not limited to:

- An NPDES permit for stormwater discharge will be obtained from the Arkansas Department of Environmental Quality. A site-specific Stormwater Pollution Prevention Plan (SWPPP) will be prepared and implemented in accordance with the requirements of the permit. The SWPPP will include all specifications and best management practices (BMPs) needed to control erosion and sedimentation. In order to select the most appropriate BMPs, the SWPPP will be prepared during the design

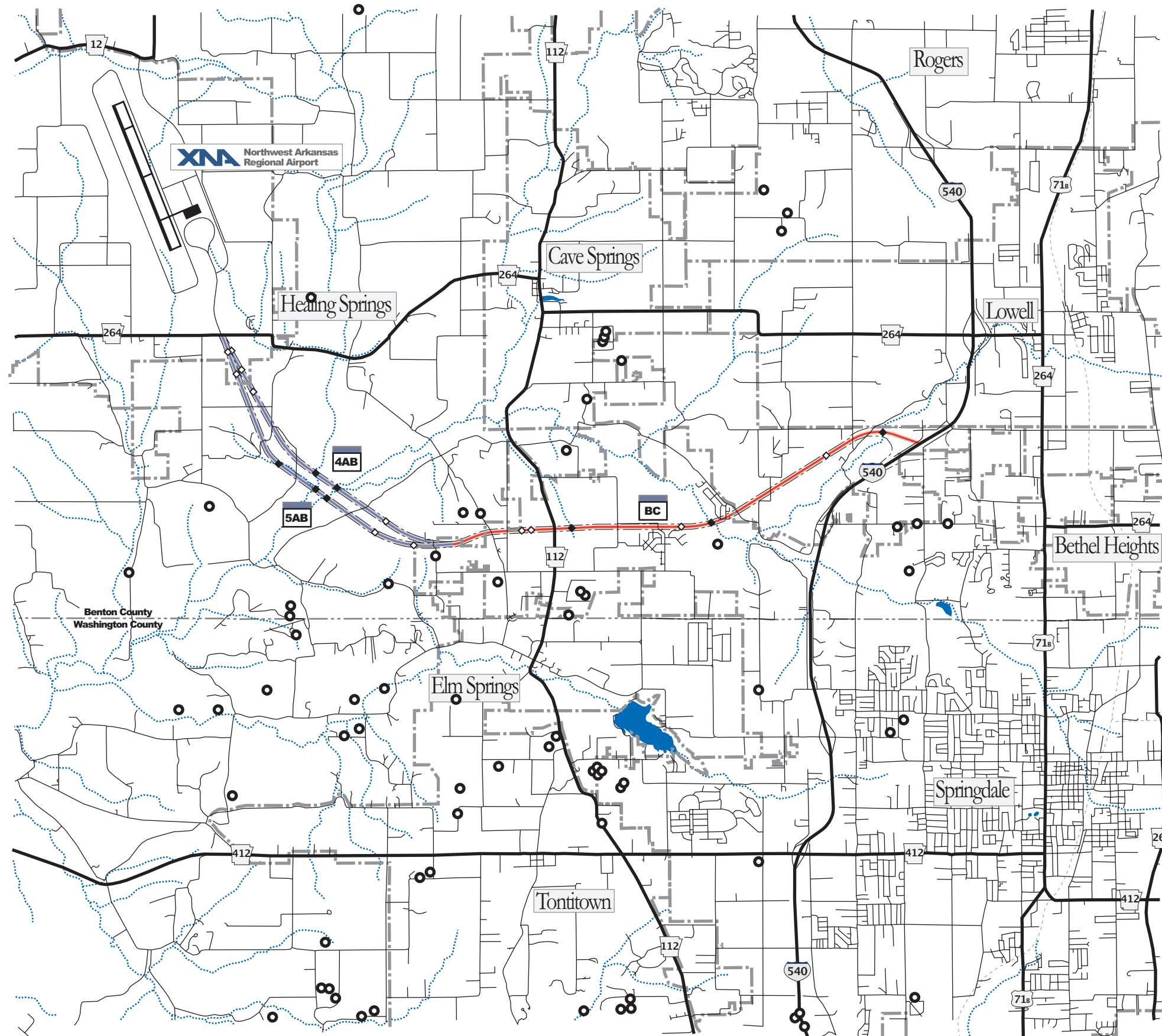


Figure D5 **Springs and Stream Crossings**

- Section AB
- Section BC
- Spring
- Stream Crossing
- Drainage Structure for Wet Weather Flows
- Interstate Highway
- U.S. Highway
- State Highway
- 4 Intermodal Access Road Alternatives

N
Approximate Scale
1" = 6,000'

**Northwest Arkansas
Regional Airport
Intermodal Access Road
Environmental Impact
Statement**



- phase. Options for long-term stormwater management, such as vegetated swales, will also be selected during the design phase.
- Dredged or fill material used for construction will be non-pollutational material in accordance with *EPA Guidelines for the Discharge of Dredged or Fill Material*, found in 40 CFR 230.
 - Minimize the removal of vegetation during construction and re-vegetate disturbed areas as quickly as possible in order to reduce soil erosion.
 - Temporary work ramps or haul roads, when needed, will provide sufficient waterway openings to allow the passage of expected high flows.
 - Temporary work roads will be routed around springs to preserve their condition.
 - Silt fences, hay bale barriers, and other erosion control devices will be installed during construction to minimize erosion and control sediment.
 - All contractors will take precautions in the handling and storage of hazardous materials, including lubricants and fuels, to prevent discharges or spills that would result in degradation of water quality.
 - Design stream crossing structures that minimize or eliminate the need to physically alter the water courses. For example, use of longer spans could minimize the need to drill piers into the stream.
 - If hazardous materials spills occur during construction, clean-up procedures outlined in the Arkansas State Highway and Transportation Department's *Standard Specifications for Highway Construction* will be followed.
 - If hazardous materials spills occur after the facility is operational, the State Emergency Operations Center's HAZMAT hotline will be notified. Response actions will be coordinated by the Arkansas Highway Patrol, the Arkansas State Highway and Transportation Department, and a contracted hazardous spill containment team.
 - The current restrictions on herbicide use along the highway system (due to the karst topography) will be maintained.
 - Stream mitigation (if required) will be determined by the U.S. Army Corps of Engineers during the Section 404 Permit application process. At that time, preliminary plans will be available for each stream crossing. Further information relating to stream mitigation will be contained in the Section 404 Permit application documents.
 - Maintain the hydrologic functions of streams or other waterbodies through proper bridge and culvert sizing and placement.
 - Bottomless culverts will be used or traditional culverts will be placed slightly below grade to prevent outlet drop scouring.

Other measures that may be used to reduce the impacts of stormwater runoff include curb elimination, litter control, establishment and management of vegetation, and reducing direct discharges to receiving waters when practicable. Measures considered

and used for the management of potential pollution problems include grassed channels, overland flow through vegetation, wet detention basins, infiltration basins, and wetlands.

Groundwater Quality

Sections 4AB and 5AB

Each of these two sections pass through the same physiographic area known for its karst topography. Areas of karst topography include features such as caves, sinking streams, sinkholes, and springs, which can provide direct connections between surface water and groundwater. There are no springs directly affected by either section. Therefore, the sections have similar potential impacts to groundwater resources in the area.

Section BC

As discussed and presented in the SNB FEIS and ROD, no springs are directly impacted by Section BC. Potential impacts to groundwater resources are similar to Sections 4AB and 5AB, and the mitigation measures for surface water are also applicable to groundwater resources for this section.

No Action

The No Action Alternative would not affect groundwater quality in the project area due to construction. However, increased traffic volumes on the existing roadway system may potentially affect groundwater resources, including the Cave Springs Cave recharge area, through increased amounts of highway pollutants in runoff and the greater potential for hazardous materials spills. Another concern of the No Action Alternative to the Cave Springs Cave recharge area is the ancillary development that could occur along Highway 264, which has numerous exit and entry points, intersections, and other areas that enhance off-highway land development.

Mitigation

Special provision and actions will be required during the design and construction phase to protect the Springfield Plateau aquifer, especially if any spring locations will be impacted by the proposed project. Commitments include ditch paving through highly vulnerable areas including areas where conduits leading directly to the groundwater are discovered during construction and routing temporary work roads around spring locations to preserve their condition. Coordination with state and federal agencies involved with groundwater quality protection will be conducted as needed when concerns are identified.

Drinking Water Supplies

Most of the study area utilizes public water supplies originating at Beaver Lake Reservoir. The remaining residents inhabit rural areas outside municipal and county water service limits and are dependent upon groundwater for domestic and agricultural purposes.

Since the proposed project will not affect Beaver Lake Reservoir, there will be no direct impacts to the public water supply. However, some small distribution lines may have to be relocated or lowered in their present location.

Section 4AB

A list of registered groundwater wells in Benton County was obtained from the Arkansas Natural Resources Commission. Based on this list, there are no wells within the proposed alignment for Section 4AB and no impacts are anticipated if Section 4AB is selected as the preferred alignment. However, if Section 4AB is selected as the preferred alignment, the rural water storage tower owned by the Washington Water Authority will have to be relocated.

Section 5AB

The list of registered groundwater wells in Benton County does not identify any water wells within the alignment of Section 5AB. Therefore, no impacts are anticipated if Section 5AB is selected as the preferred alignment.

Section BC

Because of the difficulty in assessing the recharge areas for individual wells, groundwater systems, and springs, no assessment of impacts on these systems was performed for the SNB FEIS that included the Section BC. However, if any permanent impacts to private drinking water sources occur as a result of the construction of the project, impacts will be mitigated by providing an alternative water source, either by drilling a new well or connecting the residents to a community or rural water system.

No Action

The No Action Alternative will result in increased traffic volumes on the existing roadway network, resulting in greater amounts of pollutants along the existing highway and a greater potential for hazardous waste spills due to decreased safety levels. Because

of these reasons, the No Action Alternative could increase the potential impacts to private drinking water sources.

Biotic Communities

There are potential biotic community impacts associated with any highway improvement project. These biotic communities can be classified as terrestrial and aquatic, both flora and fauna. The terrestrial flora communities that will be impacted with each of the build alternatives will be the conversion of pastureland, both native and introduced, and native woodlands to highway right-of-way. The following table, Table D10, indicates the number of terrestrial and aquatic acres each section would displace. As native species are displaced, there is the potential for invasion by non-native plant species. However, there are significant acres of introduced pastureland and the amount of displacement will not be significant with either build alternatives. In addition, due to the sensitivity of the groundwater in the area, the AHTD does not use broadcast herbicides for vegetation control in Benton County.

Terrestrial fauna species will experience some mortality in the smaller, less mobile species during construction. Existing habitat communities will be converted to early successional grassy or shrubby vegetation commonly associated with highway right-of-way. Most species will relocate and respond as they have with similar highway construction projects. That is, construction does not affect the distribution and abundance of most birds and animals, as there are no migration routes that will be cut by the construction of either build alternative. There are no known areas of rare or unique habitat that would be impacted by any of the alternatives.

Table D10

AFFECTED BIOTIC COMMUNITIES WITHIN ALIGNMENTS

Northwest Arkansas Regional Airport Intermodal Access Road DEIS

Alignment	Terrestrial Area, Acres (Hectares)	Aquatic Area, Acres (Hectares)	Total Affected Area, Acres (Hectares)
4ABC	238.9 (96.6)	3.1 (1.3)	242.0 (97.9)
5ABC	246.7 (99.8)	2.6 (1.1)	249.3 (100.9)

Should any habitat that is used by bird species protected by the Migratory Bird Act Treaty be affected by construction of the Intermodal Access Road, then the following measures will be taken to avoid or lessen the impact.

- When practicable, every attempt will be made to schedule construction clearing and grubbing activities so that they do not occur during the primary nesting season for migratory birds.
- Any structures providing nesting sites for migratory birds will be netted before nesting and brood raising activities begin to prevent nest disturbance and/or destruction of nestlings during construction activities.
- Demolition of any structures utilized by migratory birds as nesting habitat will not be permitted between April 1 and August 31.

Both Sections 4AB and 5AB will cross streams, creeks, drainageways, and other wet areas. Impacts to the aquatic fauna and flora are similar for each of the two alignments. No aquatic populations are likely to be eliminated from the project area due to construction of the project with either build alternative. Due to the sensitivity of the underground hydrology and species, steps have been taken to eliminate impact to those resources as indicated in the Threatened and Endangered Species section. There would be no difference in impacts between the toll/no toll options.

Potential impacts to biotic communities associated with Section BC were discussed and presented in the SNB FEIS and ROD. The No Action Alternative would have no impact on the aquatic communities.

Threatened or Endangered Species

Section 7 of the Endangered Species Act, as amended, requires each Federal agency to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species. As stated in the previous *Alternatives* and *Affected Environment* Chapters, the Ozark Cavefish (*Amblyopsis rosae*) and the Gray Bat (*Myotis grisescens*) are both federally listed species and are both found in Cave Springs. The recharge area of Cave Springs Cave has been of concern for a number of years, as development within the recharge area could impact the quality of the habitat of these underground species, thus impacting their existence.

Extensive research and study was prepared as part of this Draft Environmental Impact Statement (DEIS) to determine the extent of the recharge area and the impact that corridors identified for evaluation in this Study would have on that recharge area. The proposed alignments and sections would not impact the recharge area of Cave Springs

Cave or any habitat of any known threatened or endangered species. Because the toll option would result in less traffic using the Intermodal Access Road and more on the surrounding roadway network, the potential for increased risk or spills and related situations could result in increased impacts to threatened and endangered species. The no toll option results in the greatest reduction of traffic using the surrounding roadway network and therefore the least potential impacts to threatened and endangered species. Additionally, the use of co-located sections of the SNB and the Intermodal Access Road reduce the potential cumulative impact to Cave Springs Cave recharge area by combining two potential highway systems into one.

According to the U.S. Fish and Wildlife Service, gray bats are known to forage up to five miles (8.05 km) from occupied caves along forested edge habitat and stream corridors. The riparian habitat disturbance, bridge design, vehicular traffic and noise, and changes to water quality could adversely affect gray bats. Therefore, gray bat surveys using acoustic monitoring and mist netting techniques will be performed between March 15 and October 15 to determine their use of the project area. If gray bats are present, cutting restrictions for riparian habitats will be restricted to dates between October 16 and March 14. Additionally, appropriate bridge design that allows unrestricted passage of bats through the use corridors will be incorporated.

The U.S. Fish and Wildlife Service recommends the following precautionary measures to avoid adverse effects to federally listed and sensitive species that may inhabit karst features common in the project area.

- Right-of-way surveys will be conducted for unknown karst features such as cave openings, springs, losing streams, and sinkholes.
- Clearly mark and provide GPS coordinates (decimal degrees) for any caves or sinkholes found during the surveys. The U.S. Fish and Wildlife Service will be contacted for further evaluation to determine if the karst features are used by federally listed or sensitive cave species.
- If a cave is used by federally listed or sensitive species, the U.S. Fish and Wildlife Service may require the cave to be mapped when bats are not present to determine if any additional openings or passages may be affected by the project. Additionally, any recommended modifications will be incorporated that provide additional buffer areas to avoid impacts to federally listed species.
- In the event that construction activities encounter holes or other openings, work will cease in the immediate vicinity of the opening, the opening will be adequately marked, and protected from construction activities. No fill materials will be placed into the opening until U.S. Fish and Wildlife Service personnel have the opportunity to investigate the site thoroughly.

The potential impacts to threatened or endangered species associated with Section BC were discussed and presented in the SNB FEIS and ROD. In order to minimize potential impacts to the Cave Springs Cave recharge area, the U.S. Fish and Wildlife Service recommended that no local access interchanges be constructed between Highway 112 and the I-540 interchange. It was also decided that in order to minimize secondary impacts, no frontage roads would be constructed in these areas. The AHTD made the following commitments in the SNB FEIS, and are established as a part of this EIS.

- The directional interchange of the SNB and I-540 will provide no local access.
- No additional interchanges will be constructed between Highway 112 and I-540.
- No frontage roads will be built along the proposed project between the Highway 112 and I-540 interchanges, including local road construction under federal or state control, except for two short lengths of road that would provide connectivity for local roads severed by the proposed facility. The severed roads that could be reconnected are: Puppy Creek Road/Spring Creek Road, and Wagon Wheel/South Zion Road. A grade separation should be placed on both Wagon Wheel Road and South Zion Road if design and budget criteria allow.
- Drainage from the proposed project will not be allowed to enter the Cave Springs Cave recharge area as delineated and shown in the DEIS.

The No Action Alternative would cause increased potential for impacts to threatened or endangered species. With increased use of the existing roadways, including Highway 264 through the Cave Springs Cave recharge area, the potential for increased risk for spills and related situations could result in increased impacts to such species.

Wild and Scenic Rivers

There are no rivers or streams listed as Wild and Scenic on the Nationwide Rivers Inventory in the project area. Therefore, none of the sections will affect such resources.

Section 4(f) Properties

The Department of Transportation (DOT) Act Section 4(f) strictly regulates implementation of transportation projects that could impact the use of publicly-owned land that is designated as a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance. Any project or program that requires use of such land shall not be approved, unless there are no feasible and prudent alternatives and the project includes all possible planning to minimize the harm resulting from the use.

DOT Act Section 4(f) also applies to historic and archeological sites eligible for listing on the National Register of Historic Places. The analysis of such properties is contained in the Historic and Archeological Preservation section that follows.

Definition of Use. “Use” within the meaning of Section 4(f) usually occurs when the project requires a physical taking or direct control of the land for the purpose of the project, thereby changing the use of the land from its original, intended purpose.

A “constructive use”, when relating to transportation projects, may occur when the proximity of the project to the Section 4(f) land impairs its activities, features, or attributes. An example of constructive use may be a significant increase in noise levels at a park as a result of a transportation project, although the park land is not directly affected through acquisition.

Section 6(f) of the Land and Water Conservation Act stipulates that no property acquired or developed with assistance from the Land and Water Conservation Fund (L&WCF) shall be converted to other than public outdoor recreation uses without the approval of the Secretary of the Interior. If a conversion cannot be avoided, consultation would be required to discuss possible mitigation.

Correspondence with the Arkansas Department of Parks and Tourism indicated only one existing public recreation land in proximity to study area, which is the Cave Springs City Park. However, this property is located over two miles (3.2 k) from any section of the proposed Intermodal Access Road.

Section 4AB

The construction of Section 4AB would not have any impact to Section 4(f) or 6(f) properties either as a toll or no toll facility. Construction of this section is not anticipated to require a physical taking or direct control of the land.

Section 5AB

The construction of Section 5AB would not have any impact to Section 4(f) or 6(f) properties either as a toll or no toll facility. Construction of this section is not anticipated to require a physical taking or direct control of the land.

Section BC

The SNB FEIS and ROD concluded that Section 4(f) of the DOT Act of 1966 and Section 6(f) of the Land and Water Conservation Act did not apply. Since the time the SNB FEIS and ROD were published, the only condition that has changed is a planned public park

within the Legendary Subdivision; however, construction of Section BC is not anticipated to require a physical taking or direct control of the land.

No Action Alternative

Since the No Action Alternative consists of leaving the existing highway system as it presently exists, there would be no impact to either Section 4(f) or 6(f) properties.

Historic and Archeological Preservation

The guidelines for evaluation of this impact category are contained with the National Historic Preservation Act of 1966 and the Archeological and Historic Preservation Act of 1974. Both Acts require consultation with the State Historic Preservation Officer (SHPO) to determine if there are significant historic, prehistoric, archeological, or paleontological resources that may be lost or destroyed due to implementation of any evaluated alternatives. Section 4(f) of the DOT Act of 1966 also regulates the use of significant historic properties unless there are no prudent and feasible alternatives that meet the project purpose and need that avoids us of that land; and the proposed action has considered all possible planning to minimize harm to the property that would result from the proposed action.

An extensive cultural resources survey of the two alternative build alignments was conducted by the Sponsored Research Program of the Arkansas Archaeological Survey in order to inventory and evaluate archeological, historic, and cultural resources within a 1,000-foot (300-m) wide swath centered on the centerline of the alignments. A more detailed review of the cultural resources within the study area can be found in Appendix D2, Archeological References. The impacts to cultural resources will be the same for the toll/non toll options.

Section 4AB

The initial on-site survey identified a total of three sites in Section 4AB that could be impacted by a new Intermodal Access Road (3BE664, 3BE665, and 3BE666). Site 3BE664 is a Late Archaic hunting camp, Site 3BE665 is a Prehistoric quarry, and Site 3BE666 is a Prehistoric hunting camp. The Arkansas Archeological Survey recommended further testing of all three sites. A brief description of each site is provided in the following narrative.

Site 3BE664. This site is a large scatter of chipped stone artifacts on a terrace near the confluence of Little Osage Creek and Spring Branch. A total of 103 prehistoric chipped stone artifacts were found in 20 shovel tests and on the surface at this site. The

Arkansas Archeological Survey indicates this site is potentially eligible for listing in the National Register of Historic Places and recommends Phase II test excavations to determine if it qualifies for nomination.

Site 3BE665. This site is a prehistoric stone quarry located between Little Osage and Osage Creeks. Fragments of chert were collected from the surface below an outcrop of Reeds Spring chert. The presence of the collected objects and evidence at the site suggests that this geological feature was used prehistorically as a source for flintknapping material. This site is potentially eligible for listing in the National Register and the Arkansas Archeological Survey recommends Phase II test excavations to determine if it qualifies for nomination.

Site 3BE666. This site is atop a ridge between Little Osage and Osage Creeks, and is just above and part of the same landform as Site 3BE665. Seven artifacts were recovered in shovel tests at the site. This site is also considered potentially eligible for listing in the National Register and Phase II archeological excavations are recommended to determine if it qualifies for nomination.

Section 5AB

The initial on-site survey identified a total of two sites in Section 5AB that could be impacted by the Intermodal Access Road (3BE668 and 3BE671). Site 3BE668 is a Prehistoric hunting camp and Site 3BE671 is a Prehistoric lithic scatter. A brief description of each site is provided in the following paragraphs.

Site 3BE668. This site is on a large open terrace west of Little Osage Creek and south of Spring Branch. There were 40 artifacts found in shovel tests at the site, including a chipped stone tool and a fragmentary side notched projectile point. The collected material suggests that this site is an Archaic period hunting camp. The Arkansas Archeological Survey recommends further Phase II archeological excavations.

Site 3BE671. This site is on a large open terrace east of Osage Creek. Four prehistoric chert flakes were found in four of nine shovel tests. Based on the low density of artifacts found and the relatively shallow and rocky soils, the Arkansas Archeological Survey indicates that no further investigation is necessary at this site.

Section BC

The survey noted two new sites (3BE813 and 3BE 814) and two previously recorded sites (3BE662 and 3BE716) in Section BC. Site 3BE813 is a thin plowzone scatter of prehistoric chipped stone debris. Sites 3BE814 and 3BE716 are twentieth century

standing structures. Site 3BE662 is an Archaic period hunting/camping site. A brief description of each site is presented in the following narrative.

Site 3BE813. This site is a prehistoric lithic scatter on an open terrace north of Spring Creek. There were a total of 33 artifacts recovered from 22 shovel tests. However, testing indicates that there are no intact below surface archeological deposits. Sparse distributions of chipped lithics are present within the plowzone, but no apparent concentrations. Additionally, no diagnostic artifacts were found, nor is there evidence of midden staining or other features. The Arkansas Archeological Survey recommends that no further work is required in advance of highway construction at this site.

Site 3BE814. This site consists of two twentieth century wood frame structures on an east-facing slope. One structure appears to have been an original one-room frame house, with two additional rooms added later. It has since been converted to a storage shed or barn. This structure sits on a native stone foundation and has a tin roof. The other structure is a frame building built on a concrete slab. All interior walls have been removed and it has been used to store hay. Both structures have been partially dismantled and lack any architectural or even structural integrity. The Arkansas Archeological Survey determined that this site is ineligible for listing on the National Register of Historic Places and no further work is required.

Site 3BE662. This previously recorded site was revisited. It is on a bottomland terrace east of an intermittent tributary of Spring Creek. Five artifacts were recovered from thirteen shovel tests, including a straight-stemmed Archaic period projectile point, a biface/knife tip, and chipped stone flaking debris. Phase II test excavations are recommended by the Arkansas Archeological Survey as it is potentially eligible for listing in the National Register of Historic Places.

Site 3BE716. This site, also previously recorded and revisited, is a 1920s Craftsman bungalow-style house located northwest of the McClinton-Anchor quarry. The house appears to have been extensively renovated, but recently has been boarded shut. Since it no longer possesses architectural integrity, is deteriorating rapidly, and is not associated with a significant historical event, the Arkansas Archeological Survey indicates it is not eligible for listing in the National Register and no further work is required.

No Action Alternative

There would be no historic or archeological resources impacted by the No Action Alternative.

Conclusions

Once a preferred alignment has been selected, and prior to the preparation of the Final Environmental Impact Statement, an intensive Phase II analysis will be conducted within the areas recommended for further work by the Arkansas Archeological Survey and the SHPO. Prior to and during fieldwork, consultation between the Federal Highway Administration and any appropriate Native American Tribe or Tribes will be continued according to 36 CFR Part 800.4(a) of the National Historic Preservation Act (see letter sent to the Cherokee tribe in Appendix C2). All phases of field work, evaluation, and reporting will conform to the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48CFR 44716), the standards for field work and report writing in *A State Plan for the Conservation of Archeological Resources* in Arkansas, and all other pertinent state and federal laws. A full report documenting the results of the survey and stating the AHTD's recommendation will be prepared and submitted to the SHPO for review.

Eligibility determinations will be made by the FHWA in consultation with the SHPO and any appropriate Native American Tribe or Tribes. Should any of the sites be found eligible or potentially eligible for nomination to the National Register of Historic Places and avoidance is not possible, then site specific treatment plans will be developed and submitted to the SHPO and the appropriate tribe or tribes for review and comment. A corresponding Memorandum of Agreement between the SHPO, the FHWA, and the appropriate tribe or tribes will then be implemented and the appropriate treatment plan will be carried out at the earliest practical time.

Should any of the sites be found to qualify as a Section 4(f) property, there should be enough flexibility within the alignment to modify actual roadway design to consider avoidance of all but the very largest of sites. Additionally, once construction has started and any additional sites are found, work will stop immediately and the contractor and resident engineer shall immediately notify the AHTD Archaeologist, the SHPO, the Arkansas Archeological Survey, the FHWA, and the AHTD. Proper mitigation and avoidance measures will be taken.

Farmland Impacts

The Farmland Protection Policy Act (FPPA) authorized the U.S. Department of Agriculture (USDA) to establish criteria for identifying the impacts of Federally-funded programs upon the conversion of farmland to uses other than agricultural and authorized the agency to protect "FPPA land." Consultation with the Natural Resources Conservation Service (formerly the Soil Conservation Service) indicated that prime

farmland, and statewide important farmland, will be impacted (see letter and form in Appendix C2, Coordination Letters).

For comparison purposes, the number in acres of farmland, both prime and statewide important, converted by each alignment alternative is provided in Table D11, entitled *FARMLAND IMPACTS*. The No Action Alternative would not impact any prime or statewide important farmland. Section 4AB would impact approximately 22 acres (9 hectares) of prime farmland and 19 acres (7.5 hectares) of statewide important farmland. Section 5AB would impact approximately 26 acres (10.5 hectares) of prime farmland and 11 acres (4.5 hectares) of statewide important farmland. Farmlands impacts associated with Section BC would impact approximately 46 acres (19 hectares) of prime farmland and some 41 acres (17 hectares) of statewide important farmland. The impacts would be the same for all sections with or without a toll, as all necessary tolling facilities can and will be developed within the proposed 300-foot (90-m) right-of-way.

A secondary impact would be the conversion of approximately four acres (1.6 hectares) of statewide important farmland to transportation use by the construction of the interchange with the SNB. No local access would be provided at this interchange that would promote increased secondary development.

Table D11
FARMLAND IMPACTS
Northwest Arkansas Regional Airport Intermodal Access Road DEIS

Alternative	Prime Farmland, Acres (Hectares)	Statewide Important Farmland Acres (Hectares)
No Action	None	None
Section 4AB	21.7 (8.8)	18.6 (7.5)
Section 5AB	25.9 (10.5)	10.9 (4.4)
Section BC	46.4 (18.8)	40.7 (16.5)

Source: Barnard Dunkelberg & Company, 2006. Analysis utilized the USDA *BENTON COUNTY SOIL SURVEY*.

Based on the data contained in Table D11, and the completion of Form NRCS-CPA-106, *Farmland Conversion Impact Rating for Corridor Type Projects* (contained in Appendix C2), the impacts to prime and statewide important farmland will not surpass the threshold requirements for either alternative alignment. Therefore, no additional evaluation is necessary.

On most farms in the area, open land is used to grow forage for livestock. This area is where the major impacts to agriculture will occur. Right-of-way acquisition for the highway will reduce the amount of land available to some farmers, and it may become less economical for some to continue farming. Bisection of farms will not only convert farmland to highway right-of-way, but also result in the disruption of some operations. Farm severance can be mitigated through the construction of access roads or cattle and equipment underpasses where it is economically feasible. However, access roads may encourage urban development along the highway. Severance payments will be used to compensate farm owners for their lack of access to the severed portion of the farm. Severed farmland that cannot be used by the original farmer is expected to remain in production through lease or sale to adjacent farm owners.

Hazardous Waste Sites

A hazardous waste site inventory was prepared to evaluate the potential detrimental environmental conditions that may have an impact on each section. The information was presented in the *Affected Environment* Chapter. A corridor study was also obtained to identify any hazardous waste sites within the project area. There are no known locations within the project area where hazardous waste was deposited. Therefore, none of the sections will impact hazardous waste sites. However, there are several individual disposal sites on private property within the study area. In addition, some structures within the project area may contain asbestos-containing materials, such as floor, insulation, or ceiling tiles.

Individual disposal sites or potential hazardous waste sites may be observed or accidentally uncovered within the alignment during construction. If such sites are encountered, the type and extent of contamination will be determined. All characterization and remediation will be conducted in accordance with Arkansas Department of Environmental Quality, U.S. Environmental Protection Agency, and Occupational Safety and Health Administration regulations. Similarly, any demolition of structures involving asbestos-containing materials will be conducted in accordance with all applicable regulations.

Energy

Construction-related energy consumption is based on the construction cost of the alternative. The amount of energy required for the production and placement of materials (asphalt, structures, cut, fill, etc.) during construction will be a fixed cost. This

cost will be offset over the life of the project by the energy efficiencies gained through improving transportation flow within the project area.

In most situations, the proposed highway will reduce travel times to and from the Northwest Arkansas Regional Airport, thus reducing fuel consumption and improving passenger convenience. Fuel efficiencies should also improve due to higher levels of service resulting from uniform speeds, less congestion, and free flow of traffic. Traffic along other roads in the project area is anticipated to decrease as airport traffic is diverted to the proposed highway. Consequently, the operating efficiency of these roads will also improve, further reducing travel times between destinations and overall fuel consumption.

The toll road option would result in greater energy consumption based on less traffic using the toll road and staying on the existing roadway system. The lower operating efficiency on the existing roadways caused by congestion and slower speeds would cause this increase in energy consumption.

Energy consumption for construction and use of both Alignments 4ABC or 5ABC is expected to be very similar. The No Action Alternative would increase the use of energy resources because of the lowered operating efficiency caused by congestion.

There are no known natural resources that would be impacted by highway development. The existing quarry activity will not be impacted by the Preferred Alignment, but construction of the proposed roadway can limit future expansion plans of the quarry.

Energy supplies and natural resources, including oil, natural gas, and coal, are not known to exist within the corridors in economic quantities. However, oil and gas exploration can continue even if one of the alternatives is developed.

Construction Impacts

Construction activities for the Intermodal Access Road will impact the environment with most impacts being classified as temporary or short-term. The most common impacts associated with highway construction activity include temporary air and water quality degradation; noise; temporary disruption of traffic including safety, control and maintenance; the storage and disposal of construction materials; and the establishment, maintenance and use of haul roads, borrow and waste areas. Construction air, noise, and water quality impacts are discussed in greater detail in previous sections of this chapter. In general, although the noise associated with construction activities cannot be eliminated, noise impacts can be reduced by the establishment of reasonable working

hours. Sensitive noise areas such as residential neighborhoods will be identified and work restricted to daylight hours in these areas. Dust associated with construction can be reasonably controlled by a watering program. Erosion from construction sites will be controlled using standard practices as described in the *AHTD Erosion and Sediment Control Design and Construction Manual*. Traffic disruption should be minimized for the build alternatives, due to the entire route being on new location, which minimizes the involvement with residential and commercial areas.

Efforts will be made during the design, construction, and operations stage to minimize the impacts to any caves discovered within the right-of-way. After access is obtained, the proposed right-of-way will be surveyed for karst features such as cave openings and sinkholes. Should construction activity expose any previously unidentified cave, work will immediately stop in the area, access denied, and the opening secured to prevent unauthorized entry. If a cave is discovered, the U.S. Fish and Wildlife Service will be contacted for the proper procedures to be followed and to examine the cave to determine usage by any listed threatened or endangered species.

Contractors working on the Intermodal Access Road will be required to comply with pollution prevention measures contained in the *AHTD's Standard Specifications for Highway Construction, Edition of 2003*. This standard incorporates pollution prevention measures to lessen environmental impacts during highway construction, and includes contractors responsibilities regarding lessening the impacts to temporary rights-of-way; applicable environmental permits, licenses and taxes; Section 404 permits; and ways to reduce or eliminate point and non-point sources of pollution. Additionally, recyclable materials will be allowed and encouraged during construction where there is an economic, engineering, and environmental benefit.

No construction impacts will occur with the No Action Alternative.

Secondary and Cumulative Impacts

Secondary and cumulative impacts are those consequences which result from incremental actions when combined with other past or reasonably foreseen future actions. Foreseeable actions are generally regarded as those for which plans exist. The major foreseeable action which could result in substantial cumulative impacts is the SNB. This is a proposed bypass around the northern portion of Springdale, beginning west of Tontitown on Highway 412, intersecting with I-540 several miles north of the intersection of Highway 412 and I-540 and then terminating east of Springdale at an interchange with Highway 412. The Selected Alignment Alternative for the SNB was presented in the *Purpose and Need* chapter. The SNB FEIS has been completed, a public

hearing held, and a ROD issued. The Intermodal Access Road and the SNB projects have been coordinated from the beginning in an effort to share certain roadway sections that will reduce cumulative impacts. The Selected Alignment Alternative for the SNB and Section BC are co-located for approximately five miles (eight kilometers) west of I-540 to just west of Highway 112. Co-located sections for the two roadways would reduce costs and lessen impacts to the region caused by road construction and operations. The SNB FEIS and ROD took into consideration the Intermodal Access Road traffic in the evaluation of air and noise impacts.

Information gathered for both projects was shared throughout the evaluation portions for both projects in an effort to develop mutually agreed upon potential alignments. Since this project uses a section co-located with a section of the Selected Alignment Alternative of the SNB, this will result in a reduction of direct, indirect, and cumulative impacts for the two projects.

Opportunities for secondary development, and consequently, cumulative impacts will be limited directly adjacent to the Intermodal Access Road since no frontage roads will be provided along either Section 4AB or 5AB. No local access, except at the interchange with Highway 112, will be allowed along the Intermodal Access Road from the NWARA to I-540. However, local roads severed by the Intermodal Access Road will be reconnected outside of the right-of-way, which will provide connectivity of the local transportation network.

It is understood that with infrastructure improvements such as the Intermodal Access Road comes development pressure far beyond the location of the road and the realm of control by the NWARA Authority. Population increases, the creation of business centers, and the construction of housing and commercial areas are more viable through improved highway systems. Although these elements are usually present before projects are proposed, the pressures are often magnified as the general populace begins to enjoy the benefits provided by the infrastructure improvements. The NWARA Authority, Benton and Washington Counties, and the communities of Lowell, Cave Springs, Highfill, and Elm Springs will face challenges meeting the development pressures while protecting the integrity of the Cave Springs Cave recharge area. The NWARA Authority opposes any improvements to Highway 264 that negatively impacts threatened and endangered species. While the NWARA Authority has no land use control jurisdiction that enables them to limit ancillary and induced development, it does encourage all communities to adopt master plans and enact zoning ordinances that incorporate natural resources management plans and require implementation of BMPs, to participate in the development of emergency response plans for hazardous material spills, and to engage the USFWS in future consultation that will ensure long-term benefits to the threatened and endangered species known to inhabit the region.

Additional cumulative impacts to the Cave Springs Cave recharge area and its associated threatened and endangered species could arise with any future improvements to the state highway system provided by local communities. At the present time, it is known that Lowell is exploring the option of using local tax revenues to widen Highway 264 from two to three lanes between Goad Springs Road and Bellevue Road for economic development purposes. It should be noted that future development projects involving federal monies are subject to USFWS scrutiny and could be jeopardized without a clear consensus agreement from all entities involved that address transportation requirements and meet the purpose and need while protecting and conserving the sensitive karst resources associated with the Cave Springs Cave recharge area.

The recently completed Northwest Arkansas Regional Airport Master Plan Update proposed an additional parallel runway, but the proposed timeframe is 20 to 30 years, so it is not considered as reasonably foreseeable by the FAA, the AHTD, and the FHWA. As the number of enplaned passengers continues to increase at the Airport, increased flights will be scheduled or larger aircraft utilized to meet the anticipated demand. However, the increasing numbers of passengers and flights is not dependent on the improvements to the roadway system that provide vehicular access to the Airport. The USFWS indicates it must consider projects in the 50- to 100- year timeframe for consideration of long-term secondary and cumulative impacts. When the parallel runway does become necessary to increase airport capacity and reduce flight delays, then consultation with the USFWS will be conducted and any requirements will be addressed and incorporated at that time as deemed necessary.

Infrastructure/Utility Impacts

Infrastructure and utilities that may be potentially affected by the proposed project include water supply and distribution systems, wastewater collection systems, private utilities, highways, and county roads. Other types of infrastructure will not be affected by the other alternatives.

Potable water in the project area is supplied by public water systems or groundwater wells. Some water distribution pipelines may require relocation or lowering in their present location, depending upon the selected alternative. Similarly, some wells may have to be abandoned and reinstalled in new locations. Impacts to potable water supply should be similar for Sections 4AB and 5AB since the alignments are located in close proximity. However, a rural water storage tower owned by the Washington Water Authority will be relocated if Section 4AB is selected as the preferred alternative.

Most of the project area is served by septic systems, while the remaining area is served by publicly owned treatment works. Some septic systems and sanitary sewer collection lines may have to be relocated or lowered depending upon the selected alternative alignment. Once again, impacts to wastewater collection systems would be similar for both of the alignments.

Private utilities in the area include electrical distribution and transmission lines, natural gas distribution and transmission lines, communication lines, and cable television lines. Depending upon the selected alternative alignment, private utilities in the project area may be affected by the construction of the proposed project. The affected utilities will be relocated, raised, or lowered as needed in order to continue service while completing the Intermodal Access Road.

The use of Highway 264, Highway 112, and I-540 will not be adversely affected by this project. The Intermodal Access Road will initially provide a signalized at-grade intersection with Highway 264 at the entrance to the Airport and a fully directional interchange at the junction with I-540. Traffic on Highway 112 will be unaffected by constructing grade separation structures with no connection to the Intermodal Access Road.

Grade separation structures will also be used to maintain local roads where continued vehicle access is required for local traffic. In some instances where adequate alternate routes are available or continued vehicle access is not required, local roads will be closed or relocated. Based upon the current conceptual design drawings, Table D12 summarizes local road closures and relocations for alternative sections 4AB, 5AB, and BC. Figures D6 and D7 provide a graphic illustration of the location of local road closures and relocations.

Table D12

LOCAL ROAD CLOSURES AND RELOCATIONS

Northwest Arkansas Regional Airport Intermodal Access Road DEIS

Alternative	Closures	Relocations
No Action	0	0
Section 4AB	2	3
Section 5AB	2	1
Section BC	6	2

Short-Term Uses and Long-Term Productivity

The relationship between short-term impacts and use of resources, and the maintenance and enhancement of long-term productivity is one of balances and tradeoffs. The distinction between these two timeframes is hard to identify, but generally short-term uses are defined as a direct consequence of the project in its immediate and close vicinity. Long-term productivity can be defined as benefits that are the result, either direct or indirect, of the project, which can usually be considered as permanent and can influence a wider area of concern. Short-term impacts are usually considered as construction impacts, although displacement and relocation impacts are also considered as such.

The majority of costs and inconveniences will be experienced during the construction phase of the project, or immediately thereafter and are, generally, experienced by those within the immediate vicinity of the project. Benefits are usually longer in duration and are enjoyed by future generations or are conveyed upon a larger area of influence. As an example, the use of materials and the acquisition of property are short-term costs that affect the immediate vicinity of the highway. The enhanced capacity and efficiency of the improved highway facility is a long-term benefit that can be experienced for years to come throughout the entire region served by the highway.

The proposed action has been identified by the Federal Highway Administration, the Arkansas State Highway and Transportation Department and the Northwest Arkansas 2025 Regional Transportation Study as essential for the continued growth, development, safe and continued access to the Airport, and the long-term productivity of Northwest Arkansas. Thus the short-term impacts and use of resources by the proposed project is consistent with the long-term productivity of resources for the Northwest Arkansas Region.

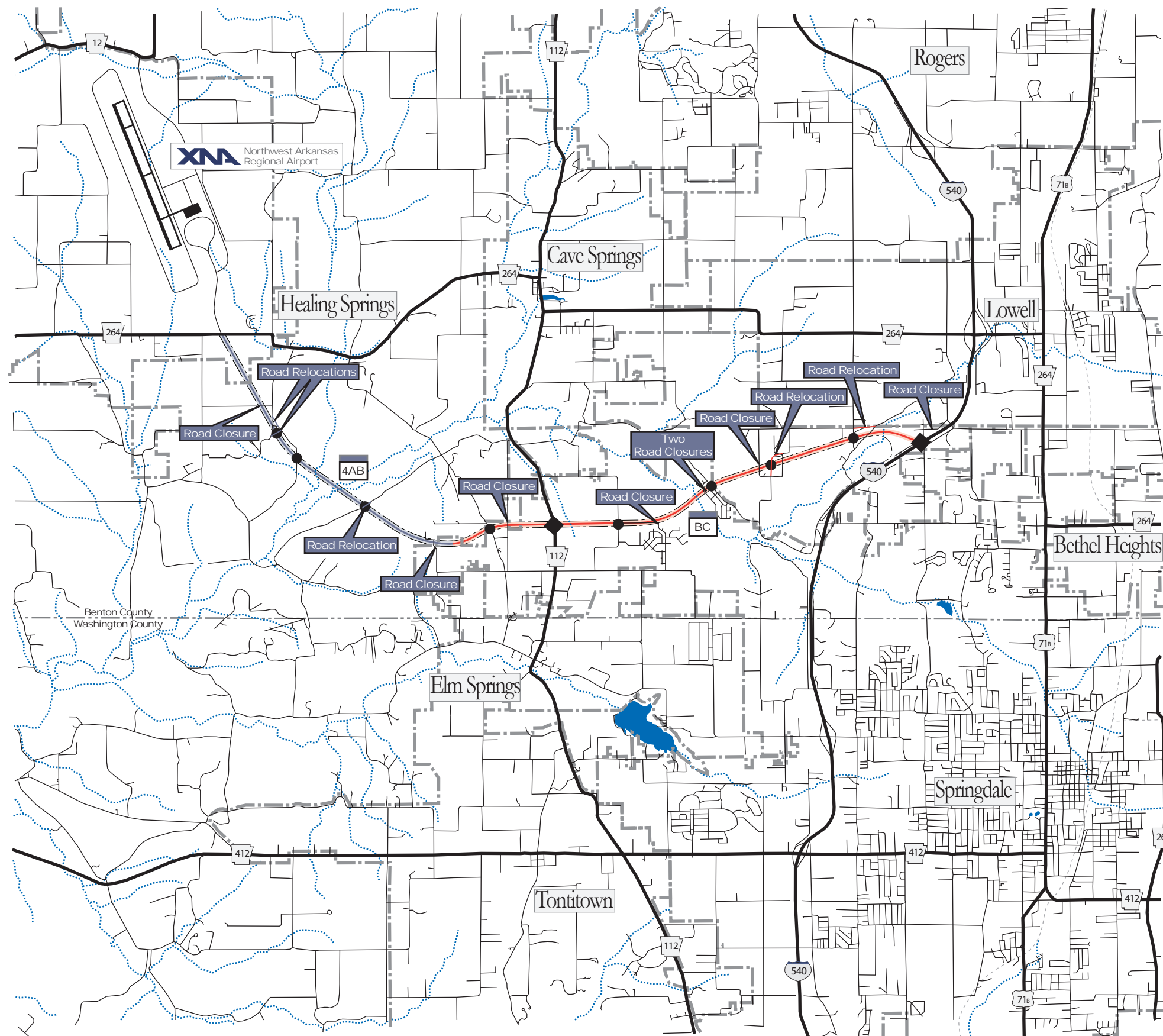


Figure D6 Alternative Alignment 4ABC Road Closures and Relocations

- Section AB
- Section BC
- Overpass
- Interchange
- Interstate Highway
- U.S. Highway
- State Highway
- Intermodal Access Road Alternatives

N
Approximate Scale
1" = 6,000'

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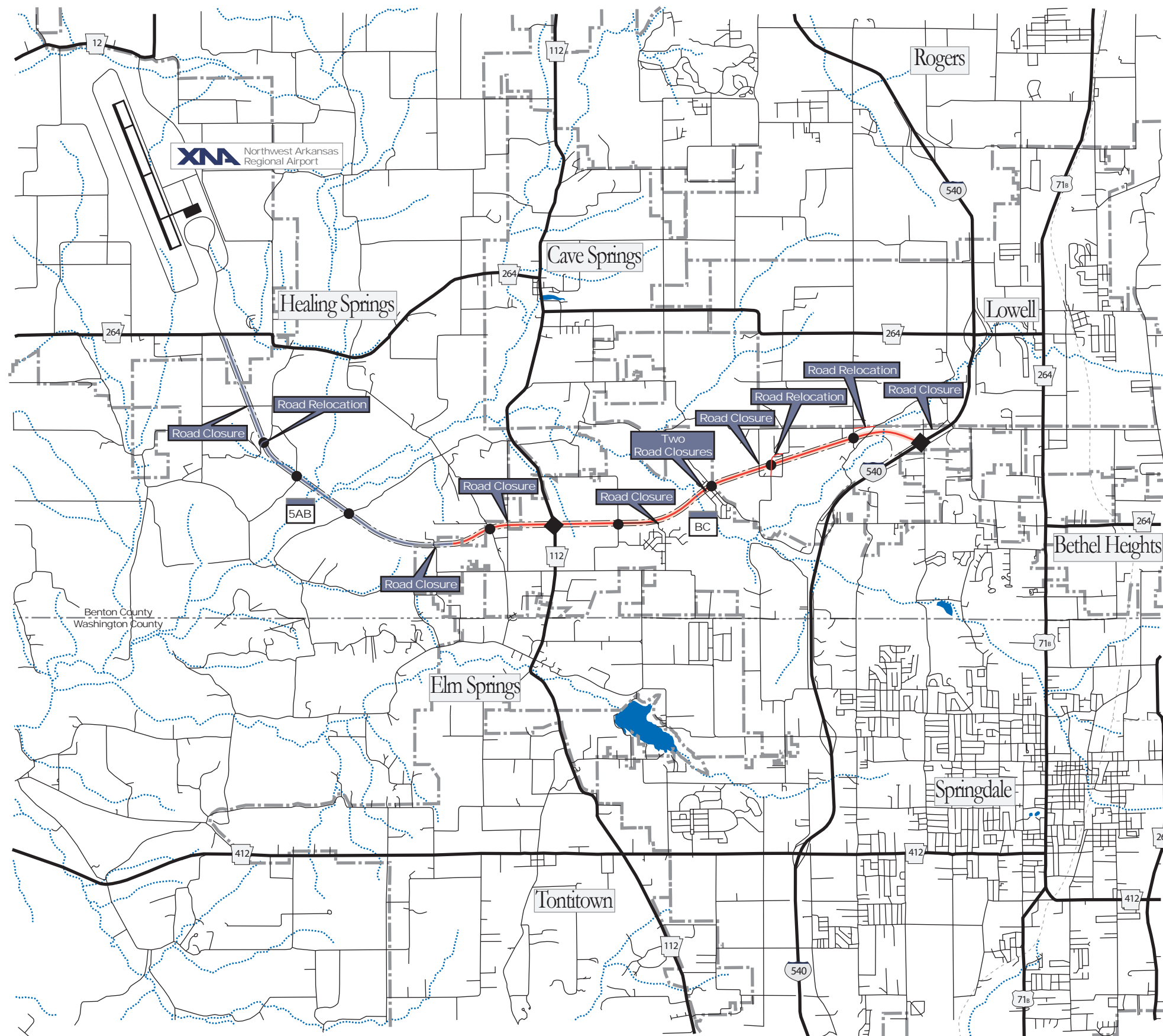


Figure D7 Alternative Alignment 5ABC Road Closures and Relocations

- Section AB
- Section BC
- Overpass
- Interchange
- Interstate Highway
- U.S. Highway
- State Highway
- Intermodal Access Road Alternatives

N
Approximate Scale
1" = 6,000'

Northwest Arkansas
Regional Airport
Intermodal Access Road
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Irreversible and Irretrievable Commitment of Resources

The implementation of either of the build alternatives involves a commitment of a range of natural, physical, human, and fiscal resources. The land used in developing each of these alternatives will be committed to that use during the life of the highway and is considered an irreversible commitment. Although unlikely, at some future date a decision could be made to use the property for some other purpose and the land could be converted to another use.

Considerable amounts of construction materials such as cement, aggregate, and bituminous material will be expended during highway development. Additionally, large amounts of labor and natural resources are used in the fabrication and preparation of construction materials. These materials are generally not retrievable, but are not in short supply and their use will not have an adverse effect upon continued availability of these resources. In fact, many of the materials used could be recovered sometime in the future and recycled for some other purpose. Items such as time, fuel, and money, along with some other non-recyclable materials are the only true resources whose commitment would be irreversible.

The commitment of these resources is based on the concept that residents in the immediate area, state, and region will benefit by the improved quality of the transportation system. These benefits will consist of improved accessibility and safety, savings in time, and greater availability of quality services that are anticipated to outweigh the commitment of these resources.